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REMEDIAL INVESTIGAITON REPORT FOR OPERABLE UNIT 5 VOLUME 2 OF 5 APPENDIX A - BASELINE RISK ASSESSMENT DRAFT JUNE 1994

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REPORT

REMEDIAL INVESTIGATION REPORT FOR OPERABLE UNIT 5

FERNALD ENVIRONMENTAL MANAGEMENT PROJECT
FERNALD, OHIO

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

VOLUME 2 OF 5

APPENDIX A - BASELINE RISK ASSESSMENT

JUNE 1994

U.S. DEPARTMENT OF ENERGY
FERNALD FIELD OFFICE

DRAFT

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A.1.0 INTRODUCTION

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This appendix contains the Operable Unit 5 Baseline Risk Assessment, which was prepared to support the Operable Unit 5 Remedial Investigation (RI) report. While the remedial investigations for Operable Units 1 through 4 focus on major source areas of environmental contamination, the remedial investigation for Operable Unit 5 is focusing on the on-property and off-property environmental media that have been contaminated as the result of past production, storage, and disposal activities at the Fernald Environmental Management Project (FEMP).

Operable Unit 5 is responsible for the following environmental media:

- Perched groundwater outside the boundaries of Operable Units 1, 2, and 4
- The Great Miami Aquifer within the study area potentially impacted by site related contamination
- Surface water and sediment outside the boundaries of Operable Units 1, 2, and 4 (e.g. the Great Miami River, Paddys Run, the storm sewer outfall ditch [SSOD])
- On- and off-property surface and subsurface soils potentially impacted by contamination originating at the FEMP that have not been assigned to Operable Units 1, 2, and 4
- Flora and fauna in the study area including products from animals grazing on the FEMP property
- Crops and produce potentially impacted by contamination originating from the FEMP.

Figure A.1-1 shows the location of the FEMP study area. Figure A.1-2 identifies the locations of the operable units. Figure A.1-3 indicates land use adjacent to the FEMP. Private well locations in the vicinity of the FEMP are shown in Figure A.1-4. Current and planned water service areas within a five mile radius of the FEMP are shown in Figure A.1-5.

A.1.1 OBJECTIVES

The primary objective of this baseline risk assessment is to evaluate and document potential threats to human health posed by current and predicted future exposures to contaminants within Operable Unit 5 if no remedial actions are taken beyond those already completed. Ecological resources and any

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potential impact which the past site activities may have on those resources is evaluated in Appendix B.

The specific objectives of this baseline risk assessment are to:

- Estimate the magnitude of potential health risks associated with Operable Unit 5, as calculated using Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) methods, if no remedial actions are taken
- Identify the areas, environmental media, and contaminants that pose significant health concerns
- Identify areas, environmental media, and contaminants that pose minimal or no threat to human health
- Identify potential data gaps so needed additional information can be collected in subsequent phases of the remedial investigation/feasibility study (RI/FS) process to support cleanup decisions
- Provide a basis for determining whether remediation is necessary at the site
- Identify specific areas of contaminated environmental media for which cleanup is appropriate
- Present a "baseline" of potential human health risks for the no-action alternative in the FS
- Provide a basis for determining cleanup levels and criteria.

This baseline risk assessment considers potential risks associated with exposure to Operable Unit 5 environmental media under current and plausible future land-use scenarios if no further remedial actions or institutional controls are applied. It further provides the framework for developing risk information necessary to assist in developing remedial alternatives.

The following activities/analyses are performed in the baseline risk assessment to develop this information:

- Identification of constituents of potential concern
- Identification of significant exposure pathways
- Characterization of potential contaminant transport over the next 1000 years

- Quantification of significant potential exposures attributable to Operable Unit 5
- Estimation of health risks to potential on- and off-site receptors
- Characterization of sources and degrees of uncertainty in the risk analysis.

The organization of this baseline risk assessment for Operable Unit 5 is consistent with the four primary steps of the risk assessment process, described in U.S. Environmental Protection Agency (EPA) guidance. These steps include data compilation and analysis, exposure assessment, toxicity assessment, and risk characterization. The report is organized as follows:

- Section A.1.0 (Introduction) provides information on site background and the CERCLA process. The overall approach and conceptual site model used in the Operable Unit 5 Baseline Risk Assessment is presented.
- Section A.2.0 (Identification of Constituents of Potential Concern) reviews data collection efforts and evaluates available sources of data to identify constituents of potential concern (CPCs) for the human health evaluation.
- Section A.3.0 (Human Exposure Assessment) describes exposure setting, potential receptor populations, and relevant exposure pathways; estimates exposure point concentrations (based in part on the fate and transport assessment presented in Section 5.0 of the RI Report); and quantifies exposure for each receptor population.
- Section A.4.0 (Toxicity Assessment) provides human toxicity information for designated CPCs identified in Operable Unit 5 environmental media.
- Section A.5.0 (Health Risk Characterization) presents the methods and results of the health risk assessment and discusses sources of uncertainty in the Operable Unit 5 Baseline Risk Assessment.
- Section A.6.0 (Uncertainties) describes types and magnitudes of uncertainties associated with each stage of the baseline risk assessment for Operable Unit 5. These must be considered when interpreting risk characterization results.
- Section A.7.0 (Summary and Comparison to Background) summarizes the contaminants of concern, exposure and toxicity assessments, and risk characterization for the human health assessment.

This appendix contains 10 attachments. Attachment A.I presents a summary of background concentrations of chemicals in various environmental media. Attachment A.II presents the statistical methods used to determine CPCs and develop the representative concentration for risk characterization. The methods used to develop the toxicity screening values for CPC selection is

presented in Attachment A.III. The results of the CPC selection process are contained in Attachment A.IV. Attachment A.V presents toxicity profiles. Detailed intake risk characterization spreadsheets and tables are presented in Attachments A.VI and A.VII. The results of radon modeling are presented in Attachment A.VIII. On-property monitoring data available for 1993 as part of the routine environmental monitoring program are presented in Attachment IX. Applicable or relevant and appropriate requirements (ARARs) to be considered in the Operable Unit 5 feasibility study are presented in Attachment X.

A.1.2 OVERVIEW

The FEMP is located on 1050 acres in Hamilton and Butler counties in southwestern Ohio. The Fernald site is approximately 18 miles northwest of downtown Cincinnati, Ohio, between the villages of Ross and Fernald (Figure A.1-1). The site became contaminated with radioactive and nonradioactive materials as a result of processing and disposal activities that took place during production at the facility. The U.S. Department of Energy (DOE) is responsible for cleanup under the Environmental Restoration and Waste Management Program. The major goals of this program are to eliminate potential hazards to human health and the environment and to make surplus properties available for other uses. The site is currently operated by the Fernald Environmental Restoration Management Corporation (FERMCO).

For completion of the RI/FS and implementation of the remedial actions, the site is divided into five study areas, or operable units, as shown in Figure A.1-2:

- Operable Unit 1 - Waste Pit Area
- Operable Unit 2 - Other Waste Units
- Operable Unit 3 - Former Production Area
- Operable Unit 4 - Silos 1 through 4
- Operable Unit 5 - Environmental Media

Each operable unit is undergoing a separate RI/FS, which characterizes the nature and extent of contamination, evaluates potential risks to human health and the environment, and evaluates potential remedial alternatives for each unit.

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A.1.2.1 Environmental Compliance Process

The assessment of baseline health risks and environmental impacts for a contaminated site is a key element of the RI/FS process. This process addresses the cleanup of hazardous waste sites under CERCLA. Four primary evaluation documents comprise the RI/FS effort for Operable Unit 5:

- The Remedial Investigation Report, which presents site characterization results and addresses the nature and extent of contamination
- This Baseline Risk Assessment, which uses information from the RI to estimate human health impacts that could occur if no cleanup actions are conducted
- The Feasibility Study, which develops and evaluates cleanup alternatives, based on the results of the Baseline Risk Assessment and the various response actions that might be appropriate for the contaminated media present at the site in the operable unit
- The Proposed Plan (PP), which summarizes the analysis of final alternatives from the FS and identifies the preferred remedial action alternative.

The decision-making process for the cleanup of Operable Unit 5 integrates the requirements of two major environmental laws: the National Environmental Policy Act (NEPA), which requires evaluating the impacts of major federal actions that may significantly affect the quality of human health and the environment in an environmental impact statement (EIS); and CERCLA, which addresses the cleanup of contaminated sites. The documents developed for site cleanup under the RI/FS process of CERCLA also meet the procedural and documentation requirements of NEPA.

The activities and environmental compliance documents for Operable Unit 5 are developed in coordination with EPA Region V and the State of Ohio. The documents are made available to the public and public involvement is an important factor in the decision-making process for site remediation. The primary evaluation documents of the RI/FS listed above will be used to develop the record of decision (ROD) for cleanup of Operable Unit 5. Responses to public comments will be addressed in a responsiveness summary and incorporated into the ROD, which will be included in the Administrative Record with the final RI/FS-NEPA package for this action. Following the ROD, remedial design and remedial action activities will be implemented at Operable Unit 5. Public involvement in the proposed action will continue during the post-ROD period.

Environmental compliance activities at the Fernald site are governed by several legal agreements in addition to regulatory requirements. For example, the Ohio Environmental Protection Agency

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(OEPA) regulates most Resource Conservation and Recovery Act (RCRA) activities while EPA oversees CERCLA activities. Although many CERCLA and RCRA activities overlap, there is no tri-party agreement between EPA, OEPA, and DOE that addresses overlapping issues.

A.1.2.2 General FEMP Description

The main physiographic features of the FEMP study area are gently rolling uplands, steep hillsides along major streams, and the Great Miami River Valley. The site is generally open grassland, with wooded areas on the southern, western, and northern portions.

On relatively flat terrain, the site slopes gently from the northeast to the southwest. Drainage on the site is generally from east to west into Paddys Run, the primary surface drainage feature of the site. An intermittent tributary of the Great Miami River, Paddys Run flows from north to south near the western boundary of the site (Figure A.1-2). Paddys Run has historically received direct runoff from the western sections of the site, including the waste storage areas. A small tributary of Paddys Run, known as the SSOD, courses to the south and east of the former production area before merging with Paddys Run in the southern part of the site.

Bounded on the west and south sides by roads, the perimeter of the irregularly-shaped site is enclosed by fences with the exception of two entrance portals. A second inner fence line surrounds the former production area and waste disposal areas. The facility contains several large buildings and several waste ponds and storage silos. The structures contain stored materials and inactive process equipment. A railroad spur runs along the north side of the former production and waste disposal areas.

There are no residences on the Fernald site. Land use in the vicinity of the site is mainly agricultural, with dairy, beef, corn, and soy bean production. Several industries are located south of the facility. The Miami Whitewater Forest, a Hamilton County park, is located within 5 miles of the Fernald site. Scattered residences and several villages, including Fernald, New Baltimore, Ross, New Haven, and Shandon are located near the site. There is an estimated population of more than 24,000 people within five miles of the site. The nearest residence is within a radius of 0.75 miles from the center of the facility. The nearest residences to the western boundary are located along the western side of Paddys Run Road (Figure A.1-2). A dairy operation, Knollman Farms, is located on Willey Road just outside the southeast corner of the property boundary. Several businesses are located along

Paddys Run Road, approximately 0.5 miles south of the facility's property boundary. The nearest residence in this direction is located approximately 0.25 miles southwest along Willey Road. There are no schools, daycare centers, hospitals, or nursing homes within a 1-mile radius of the site. The Site-Wide Characterization Report (DOE 1993e) provides more detailed information on local populations, physical features of the area, and land uses surrounding the site.

From 1952 to 1989, the site operated with the primary mission of producing uranium metal products for use as feed materials in DOE and Department of Defense programs. Production at the Fernald site peaked in 1960 with approximately 12,000 metric tons (mtu) produced that year. A production decline began in 1964, and reached a low in 1975 of about 1230 mtu. During the late 1970s, DOE considered closing the Fernald site. However, production levels subsequently increased in the 1980s, and there was a rapid employment increase for several years. Implementation of a major facilities restoration program followed. Production totally ceased in July 1989 and shutdown became permanent in June 1991 when the site mission changed from production to environmental restoration and waste management. The on-property worker population includes employees of DOE, FERMCO, and other contractors.

During its operating life, the site was called the Feed Materials Production Center (FMPC). When the site mission changed, the FMPC changed its name to the Fernald Environmental Management Project (FEMP). The site is referred to throughout this report as the FEMP even though most of the activities described herein took place during the site's production years.

The Fernald facility converted uranium ore concentrates and "recycle materials" into high-purity uranium metal with varying isotopic ratios. Some of this metal was cast into ingots and shipped to another DOE facility for extrusion into bars. These extrusions were returned to Fernald for heat treating and fabrication into target element cores for DOE reactors. Section 1.0 of the RI Report includes a detailed description of the uranium production process at the FEMP facility.

A variety of chemical and metallurgical processes were used at the FEMP to manufacture uranium products. Eight separate operation plants associated with the production facility generated a variety of radioactive and nonradioactive wastes. Large quantities of liquid and solid wastes were generated by the various operations. Before 1984, solid and slurried wastes from these processes were disposed of in the waste storage area. This area includes six low-level radioactive waste storage pits, the

biodenitrification surge lagoon (BSL), the Clearwell, the burn pit, two earthen-bermed concrete silos containing K-65 residues, one concrete silo containing waste residue, one empty silo, two lime sludge ponds, and a solid waste landfill. Portions of the waste storage area are included in Operable Units 1, 2, and 4.

The major types of waste streams generated at the site included general sump sludge, neutralized raffinate, depleted magnesium fluoride slag, and a variety of other smaller waste streams. Several radionuclides are known to be present in feed materials processed, stored, or disposed of at the FEMP. Uranium (U-), with principal isotopes U-238, U-234, and U-235, is the most abundant radioactive material within the stored waste. Small quantities of transuranics and fission products -- including strontium-90 (Sr-90), cesium-137 (Cs-137), ruthenium-106 (Ru-106), technetium-99 (Tc-99), and plutonium 239 (Pu-239) -- also may be contained in plant effluents and wastes as a consequence of processing some reprocessed metals.

In addition to uranium foundry operations, the FEMP processed small amounts of thorium from 1954 to 1975. Since 1975, Fernald has received, assayed, and stored quantities of thorium-bearing materials for potential use in DOE programs. The site, a thorium repository for DOE, maintains long-term storage facilities for a variety of thorium materials.

A.1.3 OPERABLE UNIT 5 BACKGROUND

The background information presented in the following sections provides a general overview of Operable Unit 5 contaminant sources and release mechanisms as well as Operable Unit 5 model actions conducted to date. More detailed information is presented in Sections 1, 2, 3, 4, and 5 of the RI Report.

A.1.3.1 Description of Operable Unit 5

As previously discussed, Operable Unit 5 encompasses the soil (exclusive of those within the boundaries of Operable Units 1, 2, and 4), surface water/sediment, groundwater (both perched and the Great Miami Aquifer), flora, and fauna over the entire FEMP property and those areas where contaminants released from the FEMP have been transported to or deposited on the off property environmental media. The presence of contaminated environmental media at the FEMP and surroundings is attributable to multiple sources. These sources include releases from process operations and waste management activities. Process operations include all those elements of the

FEMP production cycle which resulted in the incidental releases of contaminants to the environment over the 38-year operating history of the plant. Waste management activities include all those actions associated with the storage and disposal of waste streams from process operations and subsequent interim remedial action efforts.

A variety of primary release mechanisms involving both process operations and waste management activities, including air, wastewater discharge, spills, leaks, and land disposal, provided the vehicle for transport of contaminants to environmental media and subsequently to potential human and ecological receptors. Secondary releases, such as air resuspension of contaminated soil, contributed to further migration and transport to other media. The information on air and water emissions found in the following paragraphs is presented to provide historical perspective for the reader. The FEMP operated as a manufacturing facility between 1951 and 1989; thus emissions data for that time period are discussed. Recent data (1992) are presented as an example of emissions after the facility was shut down. The emissions data are not used in the Operable Unit 5 baseline risk assessment except to provide a complete picture of the sources of contaminants currently present in environmental media.

Airborne Releases

Airborne particles and gases, radioactive and nonradioactive, were generated by production, storage, and handling operations at the FEMP. The principal sources of airborne emissions from FEMP processing operations were:

- Discharges from dust collector stacks
- Discharges from wet scrubber stacks
- Discharges from acid-pickling fume stacks
- Non-production sources, including:
  - Old solid waste incinerator (at the sewage treatment plant)
  - Oil burners located at Plant 2/3 and north of the boiler plant
  - Graphite burner located North of the boiler plant
  - Solid waste incinerator located at Plant 2/3
- Particulate and gaseous emissions during temporary storage of by-product waste materials
- Other sources, including:
  - Emissions from building exhausts
  - Emissions from laboratory hoods
  - Fugitive emissions from the waste pits
  - Radon emissions from the K-65 silos
  - Emissions from the burn pit
  - Non-routine release events.

The estimated airborne release of uranium from 1951 through 1987 was 179 metric tons (Boback 1987). Dust collectors were the principal source of airborne emissions at the FEMP during this period (75.2 percent). The characteristic particulate emissions were less than 10 microns in size and were predominantly U_3O_8, in a normal to slightly depleted enrichment. In total, only 73 percent of these emissions are considered minimally leachable. The total airborne thorium releases over the production history were 6.5 metric tons.

In November 1993 a draft report entitled "The Fernald Dosimetry Reconstruction Project - Radionuclide Source Terms and Uncertainties" was issued for review by the Radiological Assessments Corporation (RAC) under contract to the Centers for Disease Control (CDC). The report was prepared to support an initiative being undertaken by the CDC to reconstruct the potential radiological doses received by members of the public residing around the FEMP as a result of environmental discharges during the facility's 37 year operational history.

Within the draft CDC report, RAC evaluated the projected quantities and characteristics of radiological contaminants released to the environment from facility operations. The RAC estimates employ a probabilistic approach to projecting these same historical release levels. The probabilistic based estimates completed by RAD included use of Monte Carlo methods to evaluate the propagation of uncertainty in the estimating process. These Monte Carlo simulations were completed for total site dust collector emissions, Plant 8 scrubber emissions, Plant 2/3 scrubber discharges and radon releases from the site. In general, the best estimate of the mass of releases from these sources, as projected by RAC, were an average of approximately 250 percent higher than similar estimates completed by the FEMP. The primary differences are in the estimation of releases from the Plant 8 scrubbers (385 percent higher release estimates) and the site-wide dust collection systems (265 percent higher emission estimates).

No attempt has been made to reconcile the differences between the two estimates of total mass of historical site emissions. For the purposes of this report, it is the types of uranium chemical forms (species) that are of significance, not the total mass of contaminants released. Furthermore, actual concentrations of contaminants measured in the environmental media are used for fate and transport modeling and risk assessment purposes.

Since process operations at the FEMP ceased in 1989, airborne emissions have decreased significantly. The total airborne uranium emissions (other than fugitive dust emissions) are currently determined annually by summing the estimated and measured uranium emissions from a number of stacks, vents and processes onsite. Uranium discharges from monitored stacks are the only measured emissions. In 1992, airborne uranium emissions were measured (from monitored stacks only) and estimated at 0.23 kilograms (0.51 pound) (FERMCO 1993). This represents a decrease of 20 percent from the 1991 estimated air emissions.

Wastewater Discharges

Releases of radiological and nonradiological contaminants to environmental media have occurred as the result of FEMP processes involving the generation, storage, and disposal of wastewater. In some instances (e.g., National Pollutant Discharge Elimination System permit) the discharges were and are regulated. Unregulated and unmonitored releases have also occurred over the FEMP's history as the result of leaks, spills, and overflows caused by equipment failure or storm events. Such releases resulted in contaminant migration to soil, surface water/sediment and groundwater. The principal sources of releases to the environment included:

- Discharges to the Great Miami River through the FEMP outfall pipeline
- Overflows and leaks from plant below-grade sumps and treatment systems
- Overflows and leaks from the general and refinery sumps, and the sewage treatment plant
- Leaks from the wastewater and sanitary sewage underground piping systems
- Potential leaks from the outfall line to the underlying gravel pack and soil.

In excess of 170,000 pounds of uranium and 800 pounds of thorium are estimated to have been discharged to the Great Miami River through the outfall pipeline since the startup of the plant in 1954. Approximately 960 pounds of uranium were discharged to the Great Miami River during 1992 from Manhole 175; this was a reduction of over 30 percent as compared to 1991. During 1992 there were no violations of NPDES limits at Manhole 175, the monitoring point for site discharges to the river.

Based on the average 1992 daily flow rate, 1.8 billion gallons of Great Miami River water flowed past the FEMP's effluent line. The FEMP discharged an average of 580,000 gallons of effluent into the river each day.

Storm Water Runoff

Storm water runoff has been and is a significant pathway for the migration of contaminants in environmental media. Contaminated soil (through air deposition and spils), waste storage areas (piles, pads, etc.), and the waste pits are all sources which release contaminants via storm water runoff. The runoff then conveys the contaminants into surface water, groundwater, or wastewater effluent.

Major sources of contamination available for transport by storm water runoff included the former production area soil and waste storage facilities and the waste pit area. Over much of the operational life of the FEMP, the major pathways for migration were from the perimeter of the waste pits, directly into Paddys Run at the northwest corner of the FEMP, and from the production area via a series of drainage ditches which form the SSOD leading into Paddys Run at the southwest corner of the FEMP.

The FEMP storm sewer system collected surface runoff from portions of the production area and surrounding terrain. Under normal conditions, the storm sewer water drained to Manhole 34 and was pumped by the storm sewer pumping station to Manhole 175, where it was combined with other plant effluents for discharge to the Great Miami River.

The SSOD historically has conveyed surface water runoff from the production area directly into Paddys Run during periods of heavy precipitation when the capacity of the storm sewer lift station (which diverts low-flow storm water to Manhole 175) was exceeded. Natural surface drainage from the FEMP is toward Paddys Run, which has cut six feet or more through the geological deposits upon which the facility is built. Due to the highly permeable channel bottom, the stream loses water to the underlying Great Miami Aquifer. This characteristic provides a mechanism for contaminants reaching Paddys Run via storm water runoff to enter the Great Miami Aquifer.

A storm water retention basin was constructed in October 1986 and expanded in December 1988 at the head of the SSOD. Storm water runoff from the production area is now conveyed to this basin.

After retention, the water is pumped into the Great Miami River through the main effluent line. The basins are designed to retain the runoff from a 10-year, 24-hour rainfall event.

During 1992, the Waste Pit Area Storm Water Runoff Control project was completed as an Operable Unit 1 CERCLA removal action. This project involved the installation of ditches, curbs, and storm sewers to collect storm water runoff that previously flowed directly to Paddys Run from the waste pit perimeter areas. The collected runoff is now directed to a sump from which the storm water is pumped to the existing 8.5-million gallon BSL.

The FEMP routinely reports an estimate of uranium in uncontrolled storm water runoff to Paddys Run to EPA. Based on a series of grab samples collected in various on-property drainage ditches that convey water into Paddys Run, the FEMP had developed a general estimate of 10 pounds of uranium for every inch of rain. In November 1992, this estimate was reduced to 6.3 pounds. This change was brought about in lieu of the completion of the above-mentioned Waste Pit Area Runoff Control Removal Action. For 1992, the estimate of uranium in storm water runoff to Paddys Run was reported as 350 pounds.

Production Operation Releases to Soil and Groundwater

As a result of the deteriorated condition of much of the FEMP processing facilities and the operational procedures, significant unmonitored discharges occurred from production operations. These releases occurred from uranium processing operations and support facilities such as underground storage tanks and RCRA-regulated treatment, storage and disposal units. These releases typically reached the soil column underlying these facilities by leakage of liquid waste streams and products through deteriorated flooring and containment systems. These releases were most prevalent in wet processing areas and in locations where large quantities of acids were used to digest or surface clean uranium materials. These releases were more significant in later years when process facilities and equipment continued to be used beyond their design lives. Spills of solid waste and product are also known to have occurred directly to surface soil, outside of areas with appropriate containment.

Releases During Waste Management Activities

Up to 1984, on-property disposal of solid and slurried wastes at the FEMP occurred in pits and silos. Transport of solid wastes to the pits was dependent on the type of waste generated and the type of storage containers. In general, drummed wastes were transported on flat-bed trailers, metal

dumpsters were carried by dumpster vehicles, bulk wastes were transported by dump trucks and trailers, and drummed pyrophoric metal was conveyed on four-wheeled flat-bed trailers pulled by tow tractors (NLO 1978).

At the waste storage area (Operable Unit 1), dump trucks, dump trailers, dumpster units, and drummed wastes were emptied directly onto the pits' edges. The material was then pushed into the pits by either a bulldozer or a dragline scraper. Loose contamination was washed from bulldozers, the dragline scraper, vehicles, dumpsters, and fork trucks with water at the pits.

Neutralized sludges, such as refinery raffinates, were transported between Plant 2/3 or the general sump and the pits and Clearwell via two 6-inch diameter pipes. Beginning in 1984, such wastes were dewatered, drummed and stored for off-site disposal. Releases from these waste management practices are known to have occurred, including: 1) fugitive emission from the waste pits, including releases during loading and unloading of containers and trucks; 2) releases from the waste pits to the underlying soil and groundwater; and 3) leakage from the underground slurry pipelines.

A.1.3.2 Operable Unit 5 Removal Actions

The following removal actions at the FEMP are directly associated with Operable Unit 5 (see Section 1.3.4 of the RI Report for detailed descriptions). All removal actions are being conducted pursuant to the terms of the Consent Agreement and in accordance with authorities granted to DOE under Section 104 of CERCLA by Executive Order 12580.

Removal Action No. 1 - Contaminated Water Beneath FMPC Buildings

Extraction wells operate in the areas of Plants 2/3, 6, 8, and 9 to reduce the hydrostatic head of the contaminated perched water under these buildings. The extracted water is processed in the Plant 8 volatile organic compound (VOC) treatment system and sump for uranium removal before discharge to the Great Miami River. This treatment of perched groundwater will continue until the advanced wastewater treatment system becomes operational in early 1995.

Removal Action No. 2 - Waste Pit Area Runoff Control

This removal action involved the installation of a runoff control system designed to collect storm water from the waste pit area, including the Operable Unit 4 study area, and direct it through treatment systems at the FEMP site before discharge to the Great Miami River. This was

accomplished by installing a series of drainage control structures and ditches that direct the storm water runoff to a collection sump from which it is pumped to the BSL for treatment before discharge.

Removal Action No. 3 - South Groundwater Contamination Plume

This removal action involves the installation and operation of a line of five recovery wells for the extraction of uranium-contaminated groundwater from the south plume in the Great Miami Aquifer. Pumping began August 27, 1993. The combined pumping rate was reduced from 2000 gpm to 1500 gpm in December 1993 due to possible capture of inorganic contaminants at the Paddys Run Road Site.

Removal Action No. 7 - Plant 1 Pad

This removal action included upgrades and additions to the existing Plant 1 Pad to control the potential migration of contaminants from stored materials on the pad to surrounding media. As part of the addition of 80,000 square feet of covered storage facilities, contaminated soils were excavated. The data available as the result of the analysis of pre- and post-excavation soil samples is presented and evaluated in Section 4.0 and Appendix D.

Removal Action No. 14 - Contaminated Soil Adjacent to Sewage Treatment Plan Incinerator

The purpose of this action was to remove and dispose of contaminated soil in the vicinity of the solid waste incinerator at the sewage treatment plant. Both on- and off-property soil is affected. On-property excavation was completed in November 1993 and off-site excavation in January 1994. Additional excavation will be completed in July 1994 pursuant to the results of the verification. Only constituent concentrations in soil not excavated as part of this removal action will be considered in this baseline risk assessment.

Removal Action No. 16 - Collect Uncontrolled Production Area Runoff

The scope of this action was to collect storm water runoff from the perimeter of the production area that was not draining to the storm water retention basin. This was accomplished by installing a series of concrete trench drains and curbs and regrading adjacent areas to drain to these structures. The structures were piped underground to existing storm sewers that discharge to the storm water retention basin. These controls are significant because this uncollected storm water flowed to Paddys Run and continued as a potential source of contaminants to the South Plume. Full control of the storm water from the former production area was realized in August of 1993.

This Baseline Risk Assessment addresses contamination in Operable Unit 5 environmental media as it exists and reflects conditions resulting from completed interim actions. It does not reflect conditions expected to result from planned actions or actions that have not been fully implemented as of June 1994. Potential health risks associated with future remedial actions at FEMP will be addressed as part of the remedial alternatives evaluation in the FS. The Baseline Risk Assessment for Operable Unit 5 reflects only the removal action data available and verified as useable in the FERMCO Sitewide Environmental Database (SED) at the time this report was prepared (June, 1994).

A.1.4 COMPARISON WITH RISK ASSESSMENT WORK PLAN ADDENDUM GUIDANCE

The Operable Unit 5 baseline risk assessment has been performed in compliance with guidance presented in the Risk Assessment Work Plan Addendum (DOE 1992) and Supplemental Guidance to the Risk Assessment Work Plan Addendum, June 1992 (DOE 1994).

A.1.5 OVERVIEW OF OPERABLE UNIT 5 CONCEPTUAL SITE MODEL

Conceptual site models facilitate consistent and comprehensive evaluation of risks to human health and provide a framework for identifying the paths by which human health may be impacted by contaminants. A conceptual model depicts the relationships between the five elements necessary to construct a complete exposure pathway:

- Sources of potential constituents of concern
- Release mechanisms
- Transport pathways
- Exposure mechanisms and exposure routes
- Receptors

The conceptual site model developed for the Operable Unit 5 Baseline Risk Assessment considers the potential risks to human health under current and future land use and source term conditions. Four land use configurations are evaluated:

- Current Land Use With Access Control. The land use remains industrial and DOE or other authorities maintain security (e.g., fences) which limits access to certain areas of FEMP (e.g., the former production area). Domestic cattle graze only on the limited areas currently leased for the purpose.

- Current Land Use Without Access Controls. The land use remains industrial; however, DOE no longer owns the site. Access controls are no longer maintained; all areas of FEMP are open to receptors visiting, trespassing, or working on site. Domestic cattle

graze in all areas except the former production area, the fire training area, the sewage treatment plant area, and Operable Units 1, 2, and 4.

- Future Land Use With Continued Government Ownership. DOE or other regulatory agencies continue to own and restrict land use at the facility. The land use may be industrial or recreational or the site may be closed and secured. However, residential development is not permitted.

- Future Land Use Without Access Controls or Deed Restrictions. DOE no longer owns the site. Land use is no longer restricted, engineering controls cease, and residential development may occur. The site may be used for agricultural purposes.

The source-term conditions for the current land use scenario assume that the storm water retention basin and outfall line are functional. Consequently, the majority of surface water drainage from the production area and the major waste storage/disposal areas (Operable Units 1 and 4) is controlled and is not impacting Paddys Run. The soil under the buildings and infrastructure are evaluated. The buildings and infrastructure of the former production area are within the purview of Operable Unit 3; however, the soil under them is the responsibility of Operable Unit 5. A vegetation cover consistent with the surrounding rural area (approximately 85 percent) is in place. (Sources within Operable Units 1,2,3, and 4 were considered as part of those operable units' risk assessments and are not evaluated in this study). For purposes of contaminant modeling and risk assessment, it is assumed that remediation has been completed for Operable Units 1, 2, 3 and 4. Under the current source-term configuration, the effects of radiological and chemical decay of the source have been accounted for.

The source-term conditions for the future land use scenario are similar to those specified for the current source term configuration. However, it is assumed that the retention basin and outfall line are no longer functional. Thus, excess surface water runoff flows to Paddys Run. Vegetative covers consistent with local agricultural practices (approximately 50 percent) and consistent with the surrounding rural area (approximately 85 percent) are evaluated. It is assumed that surface water runoff controls are no longer in place and that the groundwater extraction wells are no longer pumping.

The conceptual model for the Operable Unit 5 baseline risk assessment is discussed in greater detail in Section A.3.0.

A.1.5.1 Temporal Considerations/Source-Term Scenarios

The Operable Unit 5 Baseline Risk Assessment addresses the effects of time when determining the nature and magnitude of potential human exposures to site contaminants. Over time, dynamic processes in the environment affect radionuclide and chemical mobility and behavior, as well as bioavailability of contaminants to human receptors. To account for potential changes in exposure concentrations over time, the Operable Unit 5 Baseline Risk Assessment estimates exposure concentrations under both current and future source-term configurations. As discussed in Section 5.0 of the RI, contaminant levels in environmental media, on- and off-property, will change as a result of chemical radionuclide transport within and between various environmental media. Processes such as leaching rate partitioning, dilution, attenuation, and degradation will also affect these levels. Physical conditions of the property are also assumed to change. For example, the future source-term configuration assumes that the retention basin and outfall line are no longer functional.

A.1.5.2 Populations of Concern

The exposure assessment presented in Section A.3.0 describes the potential receptors and locations that are selected to assess current and potential future impacts on human receptors on and off site. The potential receptors and receptor locations are determined for a reasonable area around the FEMP. The selection of receptors and locations is impacted by site-specific environmental conditions such as: the results of site characterization, environmental monitoring, contaminant fate and transport modeling, and the nature of potential exposure pathways. Potentially exposed human populations are identified for each distinct land use condition including current and future land use and site access considerations. Subpopulations, such as young children, that could be exposed to increased risk as a result of behavior or increased sensitivity also are identified to address all significant potential relevant human exposure scenarios.

Potential receptors are further characterized according to the degree of potential exposures. In accordance with EPA guidance, risk estimates for receptor populations are developed on the basis of reasonable maximum exposure (RME) conditions. RME conditions can reasonably be expected to occur under current and future land-use scenarios, and are defined by conservative exposure parameters. The RME is intended to represent a conservative exposure case that has above the average estimated exposure levels. The Operable Unit 5 baseline risk assessment is based on RME assumptions for each potential receptor exposure scenario evaluated.

The baseline risk assessment also evaluates more typical exposure conditions by using a central tendency analysis for a selected receptor. Both central tendency and RME exposure assumptions were used to estimate risks for the on-property resident adult under future land-use conditions, thereby providing a range of estimated risks for this important receptor.

A.1.5.3 Land-Use Scenarios

The Operable Unit 5 Baseline Risk Assessment addresses a wide range of potential exposure scenarios under a variety of assumptions regarding land use and site access. Currently, land use adjacent to the site is primarily agricultural, with dairy, beef, corn, and soy bean production. In addition, more than 400 acres of open land is currently being leased to local dairymen for livestock grazing.

Consistent with these uses, the Operable Unit 5 Baseline Risk Assessment for the current land-use scenario addresses receptors both on and off site, including visitors, trespassers, off-property farmers, and consumers of meat and milk products from animals grazing on site.

Long-term risks to the public may be associated with the presence of hazardous substances remaining at the property in the future. These long-term risks are evaluated under the baseline (no-action) assessment, assuming that future land uses may differ substantially from current uses of the surrounding area and that site access and use will be unrestricted. Receptors evaluated under future land uses for Operable Unit 5 include the off-property farmers, users of meat and milk, on-property resident farmer, home builder, and a user of Great Miami River water.

In addition to land use, the presence of site access controls is a critical factor in defining potential exposures to on-site contamination. At present, a security fence surrounds the entire property, and a second line of fences surrounds several internal areas, including the former production area and the waste disposal areas. Access in and out of the facility is controlled at security checkpoints and the fenceline is regularly patrolled. These active (security patrols) and passive (fences) access restrictions have proven to be effective for restricting unauthorized site access and are expected to continue for the foreseeable future. The baseline risk assessment under the current land use assumption includes exposure scenarios that assume that these access controls will remain in effect. However, the Amended Consent Agreement also requires that the baseline risk assessment for each operable unit estimate risks under scenarios that discount the effects of access controls. Therefore, the baseline risk assessment under current land-use conditions for Operable Unit 5 also includes risk estimates for a

hypothetical scenario. This scenario assumes that environmental restoration of the property has ceased and present access restrictions are discontinued. The assessment of potential risks under future land-use scenarios considers unrestricted access to the site as well as continued federal ownership and control of the site.

A.1.5.4 Exposure Pathways

An exposure pathway is a route by which a contaminant can move from a source to a receptor. The exposure assessment presented in Section A.3.0 lists the exposure pathways considered for the purposes of this baseline risk assessment. Exposure pathways are considered if they are: a source or chemical release from a source; an exposure point where contact can occur; and an exposure route by which contaminants are taken into the body.

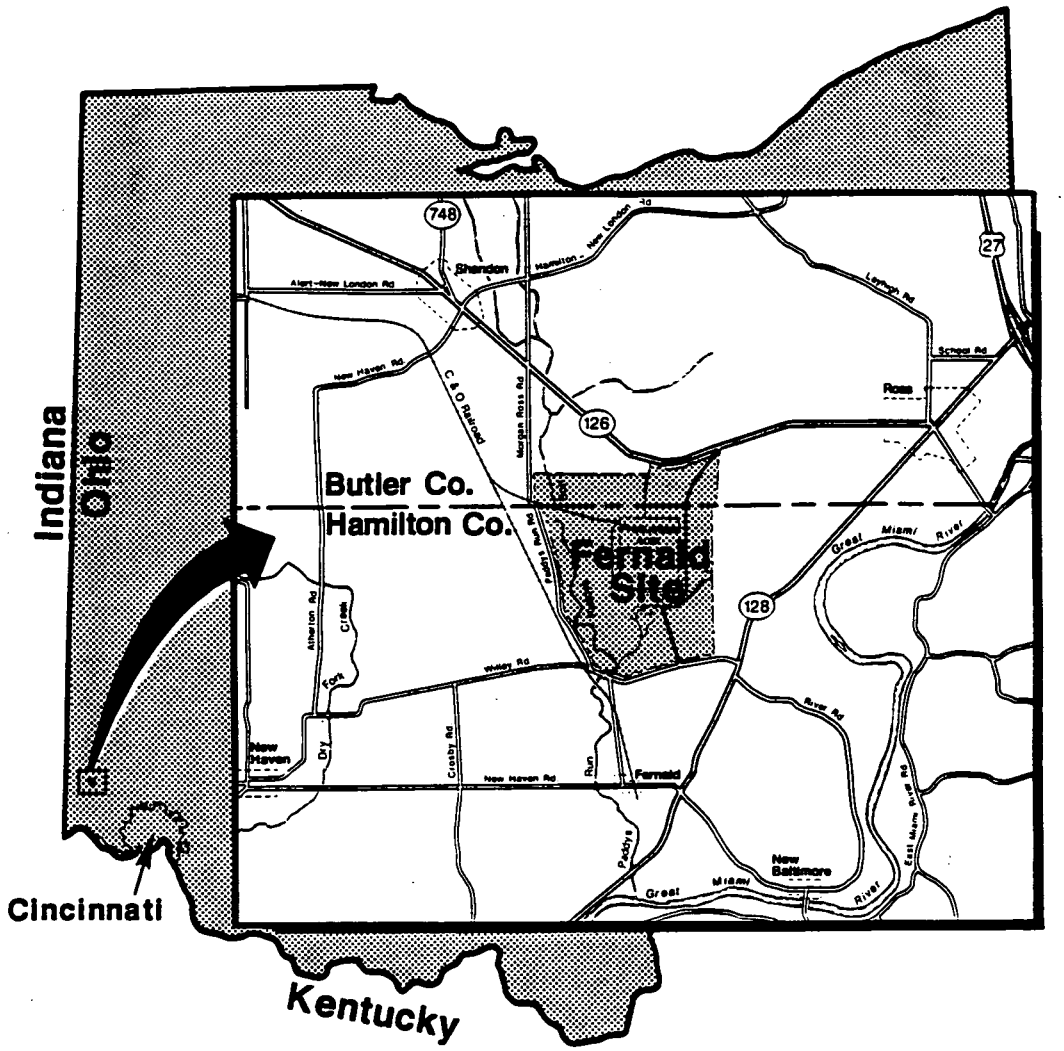

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FIGURE A.1-1. FEMP AND SURROUNDING AREA

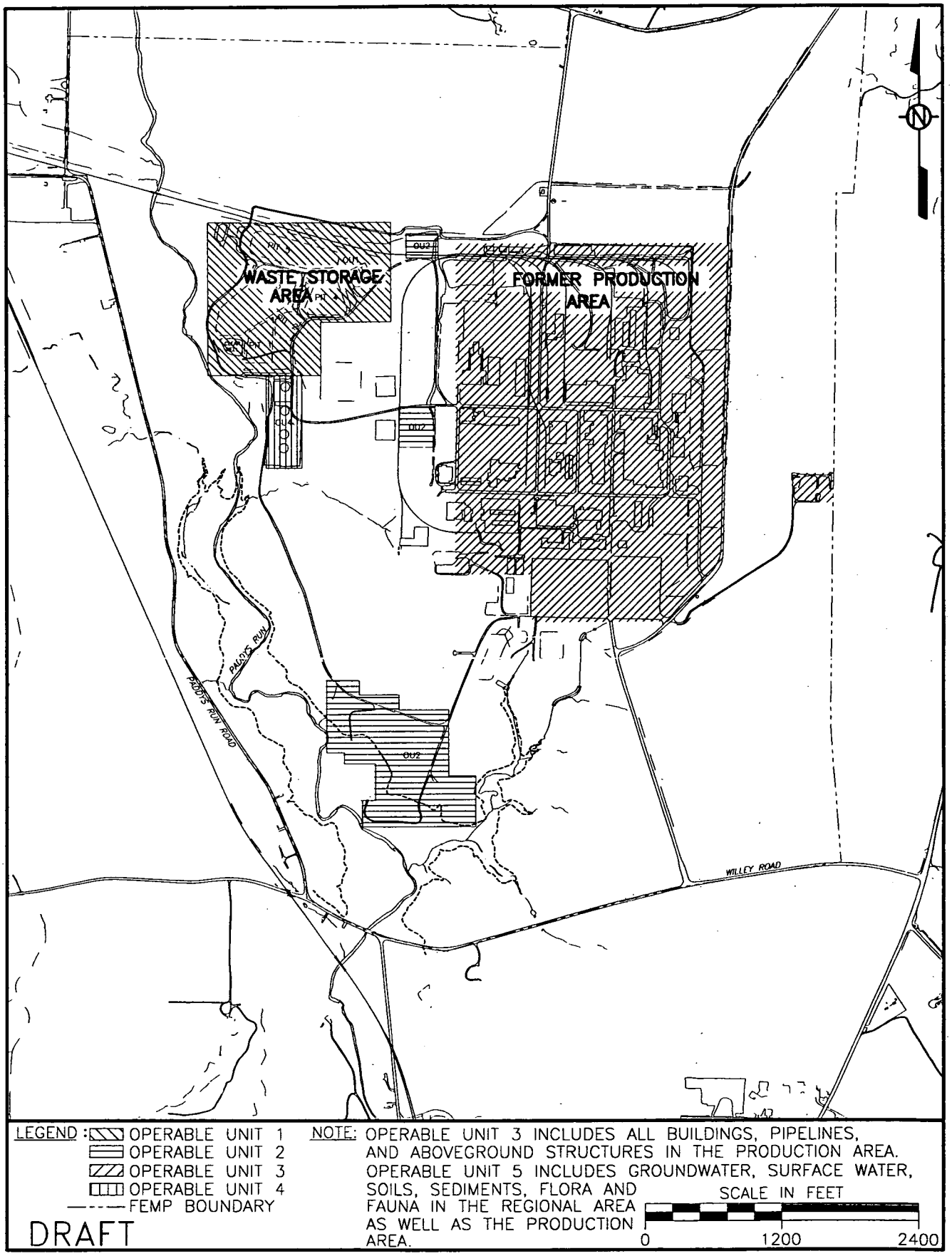

FIGURE A.1–2. OPERABLE UNITS FOR THE FEMP RI/FS

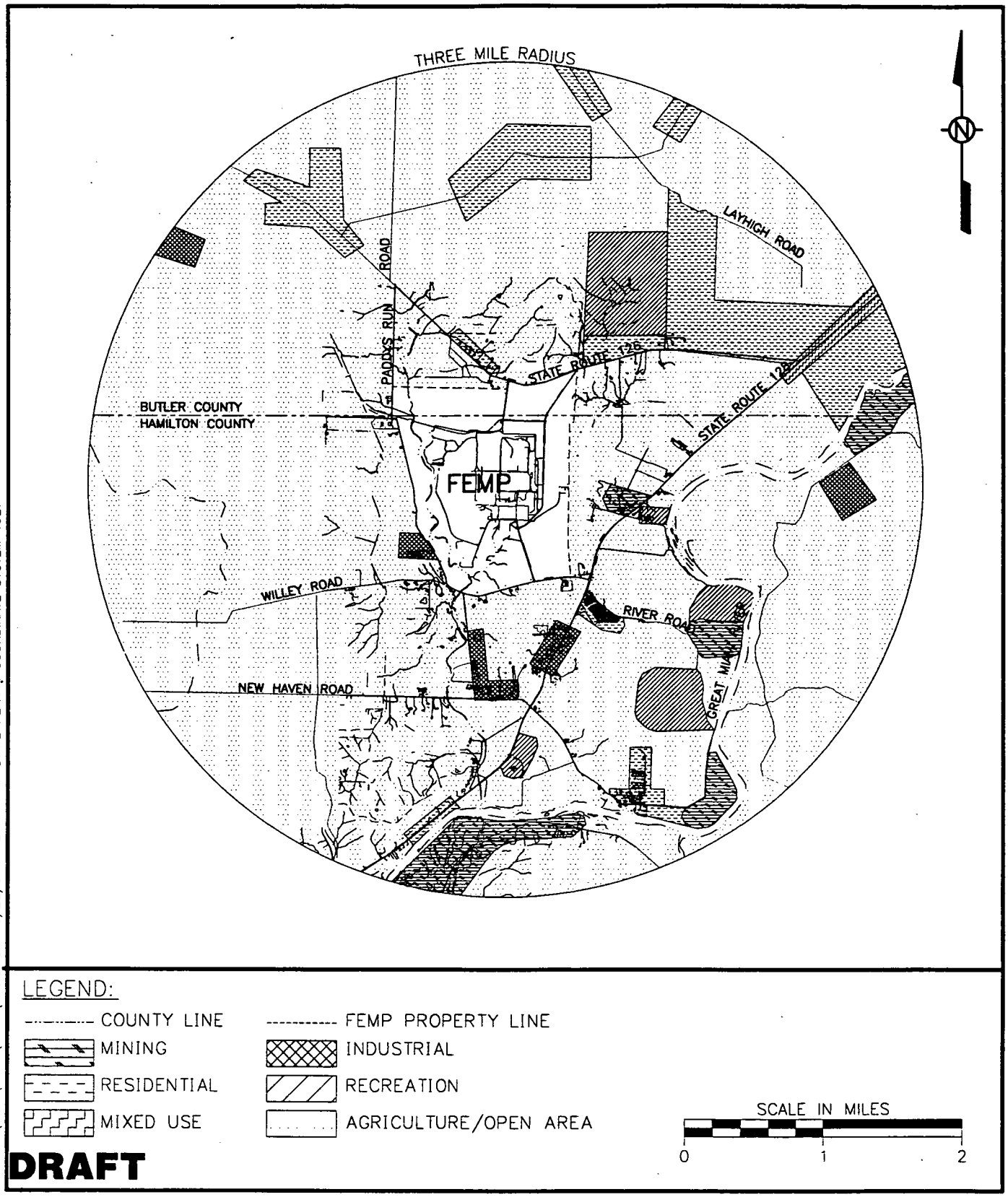

FIGURE A.1–3. LAND USE ADJACENT TO THE FEMP

LEGEND:

16 WELL LOCATION AND WELL NUMBER

FEMP PROPERTY BOUNDARY

MUNICIPAL AREA

BEDROCK

(10) REM WELL NUMBER FOR RI/FS MONITORING WELL

NOTE:

1. INVENTORY INCLUDES RESIDENTIAL, COMMERCIAL, INDUSTRIAL, AGRICULTURAL, AND MONITORING WELLS.
2. COMPLETION DEPTHS AND CONSTRUCTION DETAILS FOR SOME WELLS ARE UNKNOWN.

REFERENCE:

IT CORPORATION, 1986. "FINAL INTERIM REPORT-AIR, SOIL, WATER, AND HEALTH RISK ASSESSMENT IN THE VICINITY OF THE FMPC, FERNALD, OHIO."

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FIGURE A.1-4. PRIVATE WELL LOCATIONS IN THE VICINITY OF THE FEMP

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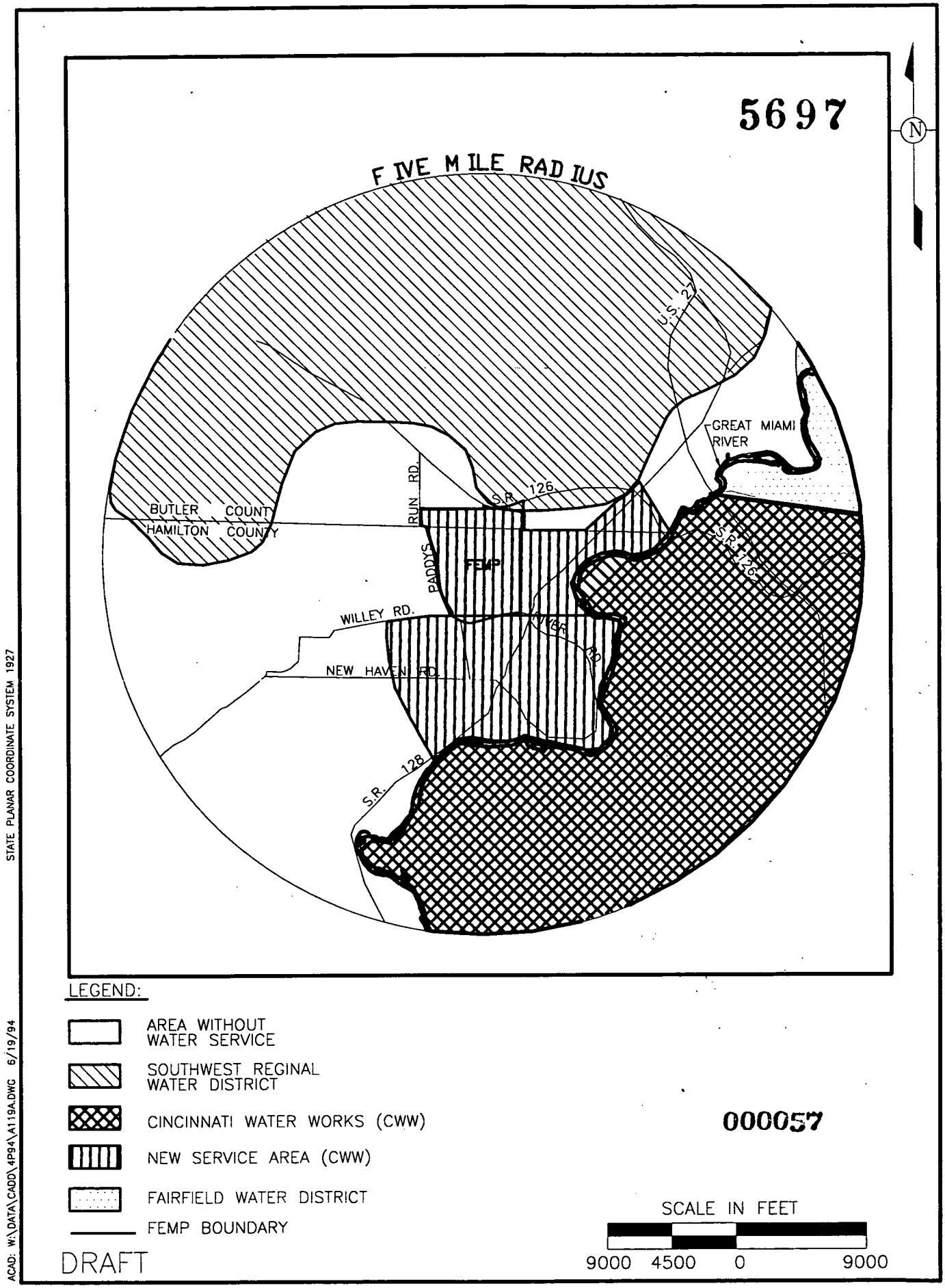

FIGURE A.1–5. CURRENT AND PLANNED WATER SERVICE AREAS WITHIN A FIVE–MILE RADIUS OF THE FEMP

A.2.0 IDENTIFICATION OF CONSTITUENTS OF POTENTIAL CONCERN

This section presents the methods for and the results of the selection of constituents of potential concern (CPCs) for the groundwater, surface water, soil, and sediment addressed in the Operable Unit 5 remedial investigation/feasibility study (RI/FS). These CPCs are evaluated quantitatively in this baseline risk assessment for Operable Unit 5 of the Fernald Environmental Management Project (FEMP). The baseline risk assessments for Operable Units 1, 2, and 4 have evaluated potential public health risks associated with CPC concentrations in wastes or environmental media within their defined boundaries. Operable Unit 3 will evaluate buildings and infrastructure within the defined boundaries of the production area. CPCs detected in the Great Miami Aquifer and potentially impacted soil, surface water and sediment, regardless of the location, are the responsibility of Operable Unit 5.

A.2.1 DATA SOURCES

This section identifies the data sources used to determine background constituent concentrations and perform the quantitative risk assessment of contaminant concentrations in environmental media. The RI/FS investigations detailed in Section 2.0 have produced data which have been validated. Additionally, sampling performed under various other programs (e.g., the project's Environmental Monitoring (EM) programs) provides data which will be acknowledged in the baseline risk assessment because a portion of the data provides actual exposure point concentrations (e.g., private monitoring well data) for potential receptors in the immediate vicinity of the FEMP. Unvalidated data such as the majority of the data produced by the EM programs are presented for exposure point comparisons only. Only validated analytical data collected as part of the RI/FS sampling program, the RCRA monitoring program, and the site's routine EM program will be used to estimate risk associated with contaminant concentrations in the Operable Unit 5 environmental media.

A.2.1.1 Data Sources for Contaminant Concentrations in Environmental Media

Extensive sampling and analysis were performed in support of the Operable Unit 5 RI/FS. Section 2.0 of this report details the scope of the groundwater, surface water, sediment, soil, and biota sampling conducted to date. The RI/FS field sampling programs began in 1987 and concluded in 1993. Although radiologicals have been the focus of much of the sampling and analytical programs, environmental sampling conducted under several field investigations provides data

characterizing the metal and organic contaminant profile for the study area. The following chart provides the approximate number of environmental samples available for site characterization and/or risk assessment at the time this report was prepared:

Media	Available Environmental Samples
Soil	5000
Groundwater	8500
Surface Water	600
Sediment	212

The available analytical data have been summarized on a media-by-media basis and are presented in Tables A.2-1 through A.2-12.

The FEMP EM programs, known jointly as radiological and environmental monitoring (REM), routinely monitors environmental media at several off-property locations in the vicinity of the FEMP. REM is driven by a specific DOE order mandating that local populations be informed of the nature and extent of environmental contamination that may exist in the vicinity of the FEMP. The REM program routinely monitors groundwater (private home owner wells), air (e.g., radon monitoring), surface water and sediment (particularly Paddys Run), soil, fish from the Great Miami River, agricultural crops, and milk. Background and quality control samples are included as part of the monitoring program. The REM data presented in the baseline risk assessment (Attachment IX) for Operable Unit 5 has not been validated to CERCLA standards. However, the data available for milk, produce, fish, and radon are presented as a point of comparison for the contaminant concentrations predicted by the food and air pathway models used in the baseline risk assessment.

Validated RCRA groundwater data (as verified and useable from the sitewide environmental database) is included in the baseline risk assessment of groundwater contaminants in the perched zones and Great Miami Aquifer.

A.2.1.2 Background Sources

Attachment A-I of this Appendix presents a summary of background data for various environmental media. Background data were extracted from the two sources identified in the following paragraphs.

In the spring of 1992, 89 background soil samples were collected at 30 locations. This sampling program is incorporated in the RCRA/CERCLA Background Soil Characterization Study (DOE 1993a). The samples were analyzed for 17 radionuclides and 27 nonradioactive metals, and the results were evaluated and validated. This sampling event was the primary source of background concentrations of constituents in the surface soil in the vicinity of the FEMP.

During the past five years, the environmental monitoring programs at the FEMP have collected data on the background concentrations of a variety of constituents in groundwater and surface water. The majority of the available data from these programs has been assembled and presented in the draft Characterization of Background Water Quality for Streams and Groundwater (DOE 1994a). This report was the primary source of background constituent concentrations in groundwater and surface water near the FEMP.

A.2.2 ANALYSIS OF DATA

A.2.2.1 Data Validation

All of the measured contaminant concentration data obtained from the RI/FS sampling program for Operable Unit 5 have been reviewed and validated if field and analytical support documentation (e.g., field and laboratory quality control results) were available. Data that did not adequately meet the criteria addressed during data validation were flagged with an "R" qualifier. Data lacking analytical support documentation (e.g., RI/FS data generated by the on-site WEMCO/FERMCO laboratory) were flagged with a "NV" qualifier. These data were not used in the quantitative baseline risk assessment process in accordance with EPA guidance (EPA 1989a). However, the significance of the "NV" data is discussed in the uncertainty section (Section A.7). Section 2.13 of this report provides additional information on data qualifiers.

Specific parameters associated with the data were reviewed during the data validation process to determine whether they met the stipulated data quality objectives (DQOs). The DQOs address five principal parameters: precision, accuracy, completeness, comparability, and representativeness. To verify that these objectives were met, field measurements, sampling and handling procedures, laboratory analysis and reporting, and nonconformances and discrepancies in the data were examined to determine compliance with appropriate and applicable procedures. The procedures and criteria used for validation are defined in the RI/FS Data Validation Program Guidelines. These guidelines

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are based on the EPA National Functional Guidelines for Data Review (EPA 1988a, EPA 1988b, EPA 1991f, EPA 1991g, and EPA 1991h).

The data validation process for the FEMP RI/FS was divided into two phases. The first phase evaluated field data to determine the completeness, accuracy, and representativeness of field sampling. The following key field data were reviewed in the validation process:

- Field activity daily logs
- Sample collection logs
- Specific field forms for sample collection and handling
- Chain of custody, request for analysis
- Field instrument calibrations
- Field personnel training
- Variances and surveillances of field activities.

The second phase dealt with analytical chemical and radiological validation. The following key supporting information for analytical data were reviewed in the validation process:

- Organic chemicals
  - Holding times
  - Gas Chromatography/Mass Spectroscopy (GC/MS) tune
  - Initial and continuing GC/MS calibration
  - Surrogate recoveries
  - Matrix spike, matrix spike duplicates
  - Blank evaluation using the 5X/10X rule
  - Internal standards
- Inorganic chemicals
  - Holding times
  - Inductively Coupled Plasma/Graphite Furnace Atomic Analysis instrument performance checks
  - Initial and continuing calibrations
  - Blank evaluations
- Radionuclides
  - Shipping reports
  - Holding times
  - Duplicate precision
  - Laboratory control samples
  - Blanks
  - Detection limits
  - Matrix spikes
  - Uranium isotopic ratios.

The culmination of the validation process was assignment of qualifier flags, as necessary, reflecting the level of confidence assigned to that datum.

A.2.2.2 Statistical Analysis of Data

Statistical procedures are used in the process of selecting CPCs and the determination of representative concentrations for each constituent. The statistical method used to determine a representative concentration for each constituent is discussed in this section. The procedures used to compare constituent concentrations to background levels are presented in Section A.2.3.2. The rationale used to develop these procedures and the statistical techniques are based on the following sources:

- Risk Assessment Guidance for Superfund: Human Health Evaluation Manual, Volume I, Part A, Interim Final (EPA 1989a)
- Statistical Methods for Evaluating the Attainment of Cleanup Standards, Volume 1 and Volume 3 (Draft) (EPA 1989c, 1990a)
- Statistical Methods for Environmental Pollution Monitoring (Gilbert 1987)
- Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities, Interim Final Guidance (EPA 1989d)
- EPA comments (December 1991 and March 1992) on the statistical methods used in the October 1991 Draft "Risk Assessment Work Plan Addendum" (Saric 1991 and 1992).

The following summary statistics are determined for data sets compiled as a result of the sampling and analysis of Operable Unit 5 RI/FS environmental media sampling and analytical testing:

- Frequency of detection
- Range of detected values
- Distribution of the data (normal, log normal or undefined for other possible types of distributions)
- The upper 95 percent confidence limit (UCL) on the arithmetic mean (or the upper 95th percentile if the distribution is undefined).

Because of the uncertainty associated with any estimate of constituent concentration, the upper 95 percent confidence limit on the arithmetic mean is used to represent source-term concentrations when a data set follows a normal or lognormal distribution. The 95th percentile detect is used to

represent source-term concentrations when a data set does not follow a normal or lognormal distribution, when a data set contains few detects (<7 detects), or contains a large portion of nondetects (>50 percent). For data sets containing less than 20 samples, the 95th percentile detect is always the maximum detected concentration.

To construct the UCL, the distribution type is determined. The Shapiro and Wilk and Shapiro-Francia goodness-of-fit tests were used to determine if a data set followed a normal or lognormal distribution. These tests were applied to data sets that contain more that seven detects and less than 50 percent nondetects. The Shapiro and Wilk test may be applied to data sets containing less than 50 samples. The Shapiro-Francia test must be used to evaluate data sets containing more than 50 samples. The equation of the UCL for a normal distribution is presented below:

$$UCL = \overline{X} + t_{1-\alpha,\, n-1} \times (S/\sqrt{n}) \qquad \text{(A.2-1)}$$

where:

$\bar{x}$	=	sample arithmetic mean
$t_{1-\alpha,\, n-1}$	=	critical value for student's t-Distribution (Helsel and Hirsch 1992, Sokal and Rohlf 1981, Gilbert 1987)
α	=	significance level of 0.05
n	=	sample size
s	=	sample standard deviation

The UCL for a lognormal distribution:

$$UCL = e^{\bar{y}+\frac{1}{2}Sy^2+H_{0.95}\,.\,S_y/(n-t)} \qquad \text{(A.2-2)}$$

where:

$\bar{y}$	=	sample arithmetic mean of the log-transformed data ($y = \ln x$; $y = \sum y/n$)
Sy	=	sample standard deviation of the log-transformed data
n	=	sample size
$H_{0.95}$	=	value for computing the one-sided UCL on a lognormal mean from standard statistical tables (Gilbert 1987, Land 1975)

When "non-detects" were included in the described statistical procedures, it was assumed that the chemical or radionuclide was present at one-half the sample quantitation limit. This assumption is in accordance with EPA risk assessment guidance (EPA 1989).

A.2.3 IDENTIFICATION OF CONSTITUENTS OF POTENTIAL CONCERN

This section discusses data validation protocol and the calculation of the representative concentration term and gives the criteria for determining whether a given constituent detected as a result of the

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analysis of environmental media is a CPC. The statistical approach used for comparing the site-related constituent concentrations with measured background concentrations is given. Nonstatistical criteria used in conjunction with the statistical comparative methods to select constituents of potential concern are also discussed. These methods and criteria are summarized in Section A.2.3 because they have been addressed in detail in the Risk Assessment Work Plan Addendum (DOE 1992) and preliminary site guidance policies. Detailed tables identifying the reason for inclusion or exclusion of each chemical or radionuclide as a CPC for evaluated areas of Operable Unit 5 are presented in the data summary tables included in Attachment A.IV. The CPCs identified for each environmental media are evaluated in the baseline risk assessment.

The list of CPCs selected was reviewed with reference to the chemicals and radiologicals known to have been used/stored at the FEMP to ensure that no major site-related constituents were eliminated as CPCs. A summary list of major constituents used in manufacturing processes at the site is presented in Table A.2-13. A summary list of the radionuclides (and their radiological properties) historically present in processed materials handled at the FEMP is provided in Table A.2-14.

Notably different CPC concentrations were detected in the samples collected from across the study area: 1) in surface and subsurface soils, 2) in groundwater samples from the perched water and the Great Miami Aquifer within the property boundary and off site, and 3) in on-site and off-site surface water and sediment samples. Because of this heterogeneity and the current and potential land use scenarios for the study area, the FEMP and surrounding areas were divided into various study areas (see Section A.3). The available analytical data for each study area is organized and CPCs are evaluated in the exposure assessment and risk characterization sections of the baseline risk assessment. The CPCs were determined using the procedure outlined in the following paragraphs.

A.2.3.1 Preliminary Screening

An initial screening of CPCs was performed to exclude constituents that would not contribute to human health risk. Constituents were excluded in this step if they are:

- Essential nutrients (sodium, potassium, calcium, iron) known to be relatively nontoxic at concentrations typically found in environmental media
- A general class of compounds such as total petroleum hydrocarbons or total organic carbon that are inappropriate parameters for risk assessment use

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- Compounds that are ubiquitous in nature (e.g., silicon, chloride) with low potential for toxicity at the concentrations typically found in environmental media.

Additionally, with the exception of Class A and B1 carcinogens, organic contaminants were eliminated as CPCs if the maximum concentration detected in an environmental medium was below the toxicity screening value presented in Tables A.2-1 through A.2-12. (The toxicity screening values were developed by methods presented in Attachment A.III.)

Organic contaminants detected infrequently in groundwater (e.g., one positive hit in several hundred available samples) and at relatively low concentrations (e.g., less than 10 μg/L) were also eliminated as CPCs. As a check to ensure that no significant organics were eliminated as CPCs, the concentration-toxicity screening procedure presented in the Risk Assessment Guidance for Superfund, Volume I, Human Health Evaluation Manual (Part A) (EPA, 1989) was used to identify those organic chemicals that are most likely to contribute significantly to risks associated with human exposure to contaminated environmental media. Each organic chemical detected in an environmental medium was assigned a risk factor (or chemical score), based on the maximum detected concentration of the chemical in the environmental medium and the toxicity criteria available for the chemical. The toxicity criteria used to conduct the concentration-toxicity screening are presented in Table A.4-3. The primary reference for the toxicity criteria is the EPA's Integrated Risk Information System (IRIS) (EPA 1994). Toxicity criteria available from the EPA's Health Effects Assessment Summary Tables (EPA 1993) and the EPA Environmental Criteria Assessment Office in Cincinnati, Ohio, were used when toxicity criteria were not available on IRIS.

The concentration-toxicity screen uses the following expression to develop a risk factor for each chemical in an environmental medium:

$$R_i = C_i \times T_i$$

where

R_i = risk factor for chemical i in the environmental medium

C_i = maximum concentration of chemical i in the environmental medium

Ti = toxicity criteria for chemical in the environmental medium (i.e., either the Cancer Slope Factor (CSF) or 1/[Reference Dose (RfD)]

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As the following expression shows, the ratio of the risk factor for each chemical to the total risk factor (ERi) for all chemicals is designated the relative risk value for that chemical:

$$ERi = Ri/\Sigma Ri$$

Tables A.2-1 through A.2-12 present the results of the toxicity-concentration screening and the chemical occurrence and distribution statistics (range of positive detections, number of positive detections/number of samples) that support the selection of organic CPCs listed in table. In general, organic chemicals demonstrating a relative risk value greater than 0.01 were retained as CPCs even if the maximum detected concentration was less than toxicity screening values presented in Attachment A.III.

A.2.3.2 Comparison to Background

When the preliminary screening was complete, measured on-property and off-property concentrations of the naturally occurring radionuclides and metals were evaluated to determine whether these constituents were present in the environmental media at concentrations that exceed background. The general approach taken was to compare the population of measured concentrations/activities in a discrete data set to a population of background concentrations/activities in the same medium for that metal or radiological constituent. For example, lead in the surface soil samples (i.e., the 0- to 1.5-foot interval) was compared to lead in the first six inches of soil taken at selected background sampling stations.

Statistical procedures charted in Figure A.2-1 were employed to compare the concentrations of constituents detected in the environmental media samples collected in a study area to concentrations detected in background samples. If the background and environmental data sets contained greater than or equal to 85 percent detects, the Shapiro and Wilk "W-Test" (for data sets containing less than 50 measurements) or the Shapiro-Francia "W-Test" (for data sets containing greater than 50 measurements) were used to determine whether the data sets were drawn from an underlying normal or log-normal distribution. Probability plots were also reviewed, as necessary, to determine the appropriate distribution when the results of the W-tests indicated that the null hypothesis (i.e., the

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data set was drawn from an underlying normal or log-normal distribution) was rejected, the percentage of detects was ≥50 percent, and the data set contained at least 7 positive detections. If both data sets (background and study area) were found to be normally distributed (or lognormally distributed) and the variances of the data sets were homogeneous (determined using Bartlett's test), the T-test was used to determine if constituent concentrations in background and study area data sets were dissimilar. If the underlying distributions of the background and study area data sets were not the same, or were undefined in either case and both data sets contained >30 percent detects, non parametric tests (e.g., the Wilcoxon Rank Sum Test [WRS]) were used. The WRS test ranks background and study area data sets by their magnitude and determines if the ranked concentrations are evenly distributed between the two data sets. If the ranked concentrations of the two data sets are not evenly distributed, the two data sets are not comparable (i.e., there is a statistically significant difference between the study area and background sample concentrations).

If the percentage of detects in a study area data set was less than or equal to 30 percent in either or both the background or study area data sets, the Test of Proportions was employed in order to determine if there is a statistically significant difference between the data sets. The Test of Proportions determines whether the proportion of positive detections in a study area data set differs significantly from the proportion of positive detections reported for background.

In addition to the aforementioned comparisons to background, the 95th Percentile Test was employed for all study area data sets containing less or equal to 30 samples. The 95th Percentile Test determines if any sample measurement in the study area exceeds the 95th percentile computed for the background data set.

A.2.4 RESULTS OF SELECTING CPCs

The results of the CPC selection process detailed in Section A.2.3 and Attachment A.II are presented in Attachment A.IV. As detailed in previous paragraphs, naturally occurring radiological constituents and metals were selected as CPCs based on a comparison to background. Organics were selected as CPCs based on the results of the toxicity screens. As discussed in the following paragraphs, the frequency of detection and the maximum reported concentration were also taken into account in the selection of organics for quantitative risk assessment.

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A.2.4.1 Organic CPCs for Soils

The following volatile and semivolatile organics detected in RI/FS soil samples were selected as constituents of potential concern for public health risk assessment:

Parameter	Surface Soil (0-1.5 feet deep) Frequency of Detection	Surface Soil (0-1.5 feet deep) Maximum Concentration (µg/kg)	Subsurface Soil (<1.5 feet deep) Frequency of Detection	Subsurface Soil (<1.5 feet deep) Maximum Concentration (µg/kg)
Benzene	4/386	5	3/387	1300
Benzo(a)anthracene	82/346	61,000	20/312	17,000
Benzo(a)pyrene	66/345	69,000	13/311	8,600
Benzo(b)fluoranthene	78/346	39,000	17/312	23,000
Benzo(k)fluoranthene	74/346	69,000	5/312	280
bis(2-ethyl hexyl)phthalate	99/341	11,000	100/309	9100
Carbon tetrachloride	2/385	1200	2/382	12
Carbozole	11/161	570	0/105	-
Chloroform	8/351	280	14/378	160
Chrysene	82/345	18,000	19/312	17,000
Dibenzo(a,h)anthracene	27/346	23,000	6/311	1100
Fluoranthene	114/345	33,000	32/312	34,000
Indeno(1,2,3-cd)pyrene	50/346	49,000	11/312	4900
Methylene chloride	59/386	5500	46/382	100
Phenanthrene	92/345	22,000	29/312	18,000
Pyrene	115/345	22,000	36/312	30,000
Vinyl chloride	0/370	-	6/378	110
Tetrachloroethene	37/381	48,000	46/381	21,000
Trichloroethene	46/385	89,000	51/381	150,000
1,1,1-Trichloroethane	38/385	9400	49/381	6600
1,1-Dichloroethane	7/351	22	39/378	460
1,1-Dichloroethene	5/370	39	25/378	460
1,2-Dichloroethane	1/370	2	6/377	10

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene are polynuclear aromatic hydrocarbons (PAHs) currently classified as B-2 (probable human) carcinogens. These PAHs are known components of fuels and are produced during the combustion process. Thus, they are probably present in Operable Unit 5 soil as a result of the wide-spread use of fuels at the FEMP and the past operation of incinerators. The maximum concentration of these constituents exceeds 10 mg/kg and the toxicity benchmarks presented in Table A.III-1; thus, they are selected as CPCs. Three PAHs not currently classified as carcinogens (fluoranthene, phenanthrene, and pyrene) are also selected as CPCs because they were detected frequently (the analytes were detected in approximately 30 percent of the samples

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analyzed) and at maximum and average concentrations exceeding 10 mg/kg and 1 mg/kg, respectively. Several chlorinated volatile organics (e.g., tetrachloroethene, trichloroethene, and methylene chloride) are selected as CPCs because they were detected relatively frequently in soil and groundwater (parameters detected in greater than five percent of samples analyzed) and/or at maximum concentrations exceeding toxicity benchmarks. As detailed in Tables A.2-1 and A.2-2, volatile and semivolatile organic constituents not selected as CPCs were detected infrequently (generally 1 to 2 positive detections) or were detected at maximum concentrations which do not exceed toxicity screen values.

The following pesticides were detected in Operable Unit 5 surface and subsurface soil samples:

	Surface Soil (0-1.5 feet deep)		Subsurface Soil (<1.5 feet deep)	
Parameter	Frequency of Detection	Maximum Concentration (ug/kg)	Frequency of Detection	Maximum Concentration (ug/kg)
4,4'-DDE	3/333	38	0/252	-
4,4'-DDT	6/334	19	0/253	-
Aldrin	1/333	1.6	0/252	-
Alpha-BHC	0/333	-	1/253	17
Alpha-chlordane	5/333	9.7	0/253	-
Beta BHC	3/333	220	0/253	-
Dieldrin	7/333	20	0/252	-
Endosulfan I	0/333	-	1/252	1.9
Endosulfan II	1/333	2.0	0/253	-
Endosulfan Sulfate	1/333	0.73	0/253	-
Endrin	5/351	19	0/252	-
Endrin aldehyde	2/179	15	1/104	5
Endrin ketone	0/333	-	0/252	-
Gamma-chlordane	1/351	5.3	0/253	-
Heptachlor epoxide	2/351	2.8	0/253	-
Methoxyclor	3/357	3.5	1/252	22

With the exception of dieldrin, none of these constituents were selected as CPCs for public health risk assessment. As summarized in Tables A.2-1 and A.2-2, dieldrin was detected in 7 of 365 surface soil samples at a maximum concentration of 20 μg/kg. The other pesticides were not detected at maximum concentrations exceeding toxicity screening benchmarks. Although over 500 soil samples were analyzed for the majority of the targeted pesticides, the frequency of detection did not exceed one percent. In contrast to the part per million concentrations reported for several volatile and semivolatile organics discussed in the preceding paragraphs, pesticides were generally detected in the

part per billion range. Pesticides were not used in the manufacturing processes at the FEMP. The sporadic, low level detections noted probably reflect past pest control activities within the study area.

A.2.4.2 Organic CPCs for Groundwater

Volatile Organic Constituents

The discussion of contaminant occurrence and distribution presented in Section 4.0 suggests that volatile organic constituents are the predominant organic constituents in groundwater. The following volatile organic compounds were selected as CPCs for public health risk assessment:

Parameter	Maximum Concentration (μg/L)	Frequency of Detection
Acetonitrile	180	7/45
Acrolein	80	2/14
Acrylonitrile	34	3/123
Acetone	3800	101/1693
1,1-Dichloroethane	500,000	142/1742
1,1-Dichloroethene	12,000	68/1604
1,2-Dichloroethane	1100	35/1675
1,2-Dichloroethene	1000	80/1442
1,1,1-Trichlorethane	840,000	122/1597
Benzene	160	43/1630
2-Butanone	3500	48/1509
Carbon disulfide	109	44/1554
Carbon tetrachloride	21	6/1590
Chloroform	1300	42/1590
Methylene chloride	490	36/1753
Tetrachloroethene	2600	74/1757
Trichloroethene	12,000	93/1753
Vinyl chloride	160	30/1589
Isobutyl alcohol	2100	7/39
4-Methyl-2-pentanone	210	38/1564
Chlorobenzene	10	7/1590
Chloromethane	13	6/1558
Toluene	180	64/1783
1,1,2,2-Tetrachloroethane	6	6/1588
Bromoform	5.4	5/1589
1,4-Dioxane	1000	9/34

All of these constituents were detected at maximum concentrations exceeding the toxicity screen concentrations. Most were also detected at maximum concentrations exceeding 1000 parts per billion.

The following volatile organic compounds were also detected at maximum concentrations exceeding screening values; however, these constituents were not selected as CPCs because they were detected infrequently and at low concentrations.

Parameter	Maximum Concentration (μg/L)	Frequency of Detection
Bromodichloromethane	5	3/1588
cis-1,3-Dichloropropene	1	1/1590
Dibromochloromethane	6.1	2/1588
Styrene	10	2/1588
1,1,2-Trichloroethane	2	4/1589

As summarized in Tables A.2-3 through A.2-6, several hundred groundwater samples were analyzed for volatile organic constituents; however, the detection frequency for these parameters was less than one percent. The maximum concentration detected did not exceed 10 μg/L. The toxicity ranking screen presented in Attachment III indicates that these constituents contribute minimally to the overall carcinogenic risk associated with maximum concentrations of volatile organic contaminants in study area groundwater.

The other volatile organic constituents listed in Tables A.2-3 through A.2-6 were not detected at maximum concentrations exceeding available risk based screening values. They were not selected as CPCs for public health risk assessment.

Semivolatile Organic Constituents

Semivolatile organic constituents are not predominant groundwater contaminants at the FEMP. In contrast to the reported volatile organic contamination, these parameters are detected at part per billion, not per million, concentrations. The following were selected as CPCs because the maximum detected concentration exceeded the toxicity screen benchmark and because they were detected in at least two groundwater samples.

Parameter	Concentration (μg/L)	Frequency of Detection
1,2,4-Trichlorobenzene	5	3/413
2-Chlorophenol	160	2/391
2,4-Dimethyl phenol	170	8/393
2,4-Dinitrophenol	24	4/368
2,6-Dinitrotoluene	11	7/415
bis(2-ethyl hexyl)phthalate	350	50/417
Carbazole	18	2/152
N-Nitrosodiethylamine	4	1/33
N-Nitroso-di-N-propylamine	8	3/411
N-Nitrosodiphenylamine	10	5/414
Nitrobenzene	6.0	2/413
Pentachlorophenol	200	6/393
Tributyl phosphate	450	10/79
4-Methylphenol	140	9/342

Acetophenone, benzo(a)anthracene, chrysene, and hexachloroethane were detected at maximum concentrations of 1 μg/L, 2 μg/L, and 19 μg/L, respectively. Although these concentrations exceed the toxicity screen benchmarks, these parameters were detected in one sample only. Consequently, these constituents were not selected as CPCs for quantitative risk assessment. The other semivolatile organics listed in Tables A.2-3 through A.2-6 were not detected at concentrations exceeding risk based screening levels. These parameter were not selected as CPCs. The toxicity ranking screen presented in Attachment A.III indicates that semivolatile organics not selected as CPCs contribute minimally to the overall carcinogenic risk associated with maximum concentrations of organic contaminants in study area groundwater.

Pesticides/Polychlorinated Biphenyl Compounds/Dioxins

Pesticides and polychlorinated biphenyl compounds are not common contaminants in the groundwater underlying and downgradient of the FEMP. One or two positive detections were reported per analyte. These constituents were not selected as CPCs. As detailed in Tables A.2-3 through A.2-5 dioxins and furans were detected more frequently and are included as CPCs for public health risk assessment.

A.2.4.3 Organic CPCs for Surface Water

The following organic constituents were detected in RI/FS surface water samples at concentrations exceeding toxicity screen benchmarks:

Parameter	Maximum Concentration (μg/L)	Frequency of Detection
bis(2-ethylhexyl)phthalate	160	7/24
di-N-octylphthalate	89	3/24
N-Nitrosodiphenylamine	4	1/24
Tetrachloroethene	240	9/25
Trichloroethene	18	7/25
1,2-Dichloroethene	67	1/25

The other organics listed in Tables A.2-7 through A.2-9 were not detected at concentrations exceeding toxicity sreen benchmarks and were not retained as CPCs. The organics not selected are not currently lassified as Class A or B carcinogens. The toxicity-concentration ranking results presented in Attachment A.III indicate that organics not selected as CPCs contribute minimally to the overall risk associated with maximum organic constituent concentrations in surface water.

A.2.4.4 Organic CPCs for Sediment

The following semivolatile organic constituents were detected in RI/FS sediment samples at concentrations exceeding toxicity screen benchmarks:

Parameter	Maximum Concentration (μg/kg)	Frequency of Detection
Aroclor-1254	1800	2/14
Benzo(a)anthracene	2600	17/34
Benzo(a)pyrene	2100	12/33
Benzo(b)fluoranthene	2700	18/33
Benzo(k)fluoranthene	2100	19/33
Bis(2-ethylhexyl)phthalate	2200	9/34
Chrysene	2700	20/34
Dibenzo(a,h)anthracene	580	2/33
Indeno(1,2,3-cd)pyrene	2300	8/33

Methylene chloride (Cmax = 7 μg/kg) and carbozole (Cmax = 120 μg/kg) are retained CPCs because they are Class B2 carcinogens; 4-Methylphenol (Cmax = 310 μg/kg), di-n-butylphthalate

(Cmax = 550 μg/kg), dibenzofuran (Cmax = 63 μg/kg), fluoranthene (Cmax = 5500 μg/kg), and pyrene (Cmax = 4400 μg/kg) are also retained because of the results of the toxicity-concentration ranking screen presented in Attachment III.

The other organics listed in Tables A.2-10 through A.2-12 were not detected at concentrations exceeding toxicity screen benchmarks and contribute minimally to overall carcinogenic/noncarcinogenic risk associated with maximum concentrations of organic contaminants in sediment. They were not selected as CPCs.

The organic CPCs identified for each of the environmental media (groundwater, surface soil, subsurface soil, surface water, and sediments) are presented in Table A.2-15.

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Radionuclide/Chemical	Sample Statistics Surface Soils: Sample Frequency of Detection [1]		Sample Statistics Surface Soils: Range of Detected Sample Concentrations [2]		Background Statistics Surface Soils: Background Frequency of Detection		Background Statistics Surface Soils: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Radionuclides, pCi/g										
Actinium-227 [9]	4	21	0.650	3.952	1	30	0.09	0.09	0.0048	
Cesium-137	402	1086	0.209	4.260	30	30	0.16	0.71	0.0021	
Lead-210	8	8	1.251	168.580	30	30	0.53	1.3	0.12	
Neptunium-237	12	568	0.214	2.630					0.0094	
Plutonium-238	39	647	0.207	151.000					0.36	
Plutonium-239/240	34	645	0.215	12.900					0.34	
Polonium-210	10	10	1.455	84.500					0.53	
Protactinium-231	1	21	5.040	5.040	0	30	0.54		0.14	
Radium-224	21	21	0.313	5.357	30	30	0.85	0.93	0.17	
Radium-226	1099	1251	0.300	2950.000	30	30		1.48	0.00069	
Radium-228	563	744	0.520	558.000	30	30		1.27	0.0014	
Ruthenium-106 [17]	6	1026	1.879	10.550	0	30	0.3		8.4	
Strontium-90 [17]	234	639	0.510	26.300	4	30		0.46	2.2	
Technetium-99 [17]	125	652	1.100	602.000	0	30	5.84		61	
Total Thorium [18]	1417	1959	1.010	2581.013	30	30	0.68	13.9	NA	
Thorium-228	882	935	0.200	315.000	29	30	0.9	1.43	0.00074	
Thorium-230	926	970	0.200	7901.000	29	30	0.64	2.01	5.7	
Thorium-232	1218	1425	0.180	283.000	30	30		1.52	6.4	
Thorium-234	20	21	2.050	2289.000			2.56		1.1	
Total Uranium [18]	2216	2557	1.000	90350.000	30	30		4.03	NA	
Uranium-234	1086	1100	0.200	18093.000	30	30		1.31	4.8	
Uranium 235/236	769	1116	0.018	1021.000	27	30		0.2	0.017	
Uranium-236	91	121	0.040	5.000			0.85		5.1	
Uranium-238	1404	1581	0.300	19067.000	30	30		1.33	0.11	
Volatile Organic Compounds, ug/Kg										
1,1,1-Trichloroethane	38	385	1.000	9400.000					NA	X
1,1,2,2-Tetrachloroethane	2	350	2.000	190.000					319	
1,1,2-Trichloroethane	1	385	14.000	14.000					1,121	
1,1-Dichloroethane	7	351	1.000	22.000					NA	
1,1-Dichloroethene	5	370	2.000	39.000					106	
1,2-Dichloroethane	1	370	2.000	2.000					702	X
1,2-Dichloroethene (Total)	9	351	1.000	340.000					273,750	

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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Radionuclide/Chemical	Sample Statistics Surface Soils: Sample Frequency of Detection [1]		Sample Statistics Surface Soils: Range of Detected Sample Concentrations [2]		Background Statistics Surface Soils: Background Frequency of Detection		Background Statistics Surface Soils: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
2-Butanone	16	268	1.000	110.000					16,425,000	
2-Hexanone	3	248	2.000	47.000					1,095,000	
4-Methyl-2-pentanone	15	285	1.000	160.000					1,368,750	
Acetone	40	383	3.000	450.000					2,737,500	
Benzene	4	386	2.000	5.000					2,203	X
Bromomethane	1	351	720.000	720.000					38,325	
Carbon tetrachloride	2	385	1100.000	1200.000					491	X
Carbon disulfide	17	379	2.000	790.000					2,737,500	
Chlorobenzene	5	385	1.000	10.000					547,500	
Chloroform	8	351	1.000	280.000					10,471	X
Ethylbenzene	8	386	0.800	660.000					2,737,500	
Methylene chloride	59	386	1.000	5500.000					8,517	X
Styrene	2	49	1.000	28.000					2,129	
Tetrachloroethene	37	381	1.000	48000.000					273,750	X
Toluene	74	386	0.700	200.000					5,475,000	
Total Xylenes	11	370	2.000	2000.000					54,750,000	
Trichloroethene	46	385	1.000	89000.000					5,807	X
trans-1,2-Dichloroethene	2	19	3.000	3.000					547,500	
Semivolatile Organic Compounds, ug/Kg										
2,4-Dichlorophenol	1	334	100.000	100.000					82,125	
2,4-Dimethylphenol	3	351	60.000	100.000					547,500	
2,4-Dinitrotoluene	1	366	53.000	53.000					94	
2,6-Dinitrotoluene	1	342	11.000	11.000					94	
2-Chlorophenol	1	334	48.000	48.000					136,875	
2-Methylnaphthalene	28	342	25.000	1700.000					NA	
2-Methylphenol	1	374	45.000	45.000					1,368,750	
3,3'-Dichlorobenzidine	1	341	190.000	190.000					142	
4-Chloro-3-methylphenol	1	334	46.000	46.000					NA	
4-Methylphenol	1	343	50.000	190.000					1,368,750	
4-Nitroaniline	1	321	330.000	330.000					82,125	
Acenaphthene	21	342	52.000	4800.000					1,642,500	
Acenaphthylene	13	342	41.000	3100.000					NA	
Anthracene	38	346	1.000	11000.000					8,212,500	

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

Radionuclide/Chemical	Sample Statistics Surface Soils: Sample Frequency of Detection [1]		Sample Statistics Surface Soils: Range of Detected Sample Concentrations [2]		Background Statistics Surface Soils: Background Frequency of Detection		Background Statistics Surface Soils: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Benzo(a)anthracene	82	346	1.000	61000.000					58	X
Benzo(a)pyrene	66	345	1.000	69000.000					8.8	X
Benzo(b)fluoranthene	78	346	34.000	39000.000					71	X
Benzo(g,h,i)perylene	48	346	38.000	48000.000					NA	
Benzo(k)fluoranthene	74	346	19.000	69000.000					168	X
Benzoic Acid	9	287	55.000	250.000					109,500,000	
Benzyl alcohol	2	295	69.000	290.000					8,212,500	
Butyl benzyl phthalate	5	344	42.000	750.000					5,475,000	
Carbazole	11	161	7.000	570.000					3,194	
Chrysene	82	345	1.000	18000.000					1,996	X
Di-n-butylphthalate	41	346	1.000	6100.000					2,737,500	
Di-n-octylphthalate	5	344	7.000	630.000					547,500	
Dibenzo(a,h)anthracene	27	346	39.000	23000.000					7.9	X
Dibenzofuran	24	342	50.000	3400.000					NA	
Diethyl phthalate	3	342	1.000	52.000					21,900,000	
Fluoranthene	14	345	1.000	33000.000					1,095,000	
Fluorene	23	342	7.000	5700.000					1,095,000	
Hexachlorobutadiene	1	362	430.000	430.000					819	
Indeno(1,2,3-cd)pyrene	50	346	35.000	49000.000					32	X
Isophorone	1	342	830.000	830.000					67,237	
N-Nitroso-di-n-propylamine	1	338	39.000	39.000					9.1	
N-Nitrosodiphenylamine	4	342	43.000	1300.000					13,036	
Naphthalene	27	342	1.000	1800.000					1,095,000	
Phenanthrene	92	345	1.000	22000.000					NA	X
Phenol	9	335	1.000	730.000					16,425,000	
Pyrene	15	345	1.000	22000.000					821,250	X
Tributyl phosphate	8	39	46.000	1200.000					136,875	
Bis(2-Chloroisopropyl)ether	2	328	44.000	48.000					913	
Pesticides/PCBs, ug/Kg										
4-4'-DDE	3	333	11.000	38.000					188	
4-4'-DDT	6	334	3.000	19.000					188	
Aldrin	1	333	1.600	1.600					3.8	
Aroclor 1254	81	337	11.000	14000.000					8.3	X

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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Radionuclide/Chemical	Sample Statistics Surface Soils: Sample Frequency of Detection [1]		Sample Statistics Surface Soils: Range of Detected Sample Concentrations [2]		Background Statistics Surface Soils: Background Frequency of Detection		Background Statistics Surface Soils: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Aroclor 1260	17	338	120.000	2800.000					8.3	X
Dieldrin	7	333	0.550	20.000					4.0	X
Endosulfan II	1	333	2.000	2.000					NA	
Endosulfan sulfate	1	333	0.730	0.730					NA	
Endrin	5	351	9.400	19.000					8,213	
Endrin aldehyde	2	179	8.700	15.000					NA	
Heptachlor epoxide	2	351	1.000	2.800					7.0	
Methoxychlor	3	351	0.850	3.500					136,875	
Alpha-Chlordane	5	333	2.100	9.700					49	
Beta-BHC	3	333	46.000	220.000					35	
Gamma-Chlordane	1	351	5.300	5.300					49	
PCDDs and PCDFs, ng/g (ug/Kg)										
Octachlorodibenzo-p-dioxin	6	20	240.000	1100.000					0.43	X
Octachlorodibenzofuran	2	20	240.000	1300.000					0.43	X
Heptachlorodibenzofuran	1	20	320.000	320.000					NA	X
Inorganics, mg/Kg										
Aluminum	428	428	483.000	25700.000	30	30	5350	15000	NA	
Antimony	40	233	2.800	59.800	0	22	ND	ND	11	
Arsenic	386	400	0.770	81.900	26	30	3.4	9.2	0.037	
Barium	452	452	11.400	587.000	29	29	31	94.1	1,916	
Beryllium	249	424	0.280	5.700	1	30	0.6	0.6	0.015	
Boron	1	1	14.300	14.300					2,464	
Cadmium	159	442	0.490	12.400	6	30	0.52	0.95	14	
Calcium	418	428	778.000	347000.000	30	30	856	5340	NA	
Chromium	441	446	1.600	80.100	30	30	6.7	17.7	137	
Cobalt	403	428	1.800	32.900	30	30		16.5	1,643	
Copper	386	428	3.800	695.000	27	30	3.2	17.3	NA	
Cyanide	107	384	0.110	22.800	12	30	0.14	0.29	548	
Iron	428	428	24.500	45100.000	30	30	9370	24900		
Lead	410	415	2.800	2180.000	28	30		36.4	NA	
Magnesium	428	428	227.000	65300.000	30	30	1020	3590	265,538	
Manganese	411	413	9.900	4400.000	29	29	189	1500	137	
Mercury	55	447	0.600	6.300	1	30	0.3	0.3	8.2	

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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Radionuclide/Chemical	Sample Statistics Surface Soils: Sample Frequency of Detection [1]		Sample Statistics Surface Soils: Range of Detected Sample Concentrations [2]		Background Statistics Surface Soils: Background Frequency of Detection		Background Statistics Surface Soils: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Molybdenum	142	403	0.600	13.300	0	30	ND	ND	137	
Nickel	369	422	3.800	72.200	29	30	5.8	22.7	548	
Potassium	422	428	222.000	4230.000	29	30		1590		
Selenium	58	365	0.230	7.700	1	30		0.72	137	
Silicon	262	278	31.800	6660.000	29	29	480	2230		
Silver	167	434	0.470	36.400	0	30	ND	ND	137	
Sodium	341	428	25.200	2360.000	27	30	26.9	54.7		
Thallium	59	425	0.110	0.750	1	30	0.58		1.9	
Vanadium	425	428	4.300	49.000				30	192	
Zinc	402	420	6.200	2150.000	30	30		70	8,213	

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TABLE A.2-1

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE SOIL (0 - 1.5 FEET)
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT

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NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Mean background concentration and upper tolerance limit values (UTLs) are for the 0" - 6" depth interval. Mean background concentrations and UTLs presented for radionuclides are for parent isotopes only and do not represent values for daughter products. Refer to Tables 1 and 2 of interoffice correspondence from Dennis Carr (4/2/93) regarding background soil values to be adopted in FEMP CERCLA/RCRA activities.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Presented as the number of detected concentrations of a contaminant exceeding the corresponding RBC over the total number of detected concentrations of that contaminant.

[8] Radionuclide concentrations presented are in units of pCi/g.

[9] "+D" Indicates that risks from exposures to decay chain products were incorporated into the Fermco PRG.

[10] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/kg.

[11] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/g (ug/kg).

[12] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/kg.

[13] RBC presented for uranium is for the soluble salts of uranium.

[14] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[15] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[16] RBC presented for alpha- and gamma-chlordane is for chlordane.

[17] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

[18] Total thorium and total uranium concentrations are expressed in mg/kg.

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TABLE A-17

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SUBSURFACE SOIL (> 1.5 FEET)

	Sample Statistics Sediments				Background Statistics Sediments					
	Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario	Retained as COC?
Radionuclide/Chemical	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	[6]	
Radionuclides, pCi/g										
Actinium-227[9]	0	2			3	51	0.06	0.1	0.0048	
Cesium-137	17	409	0.24	2.94	0	51	ND	ND	0.0021	
Lead-210	36	48	0.56	34.00	43	51	0.31	0.97	0.12	
Neptunium-237	2	316	0.29	0.31	NA	NA	NA	NA	0.0094	
Plutonium-238	8	363	0.34	158.00	NA	NA	NA	NA	0.36	
Plutonium-239/240	17	362	0.30	5.50	NA	NA	NA	NA	0.34	
Polonium-210	75	75	0.63	34.37					0.53	
Radium-224	4	4	0.67	1.33	51	51	0.28	1.07	0.17	
Radium-226	432	501	0.30	137.00	51	51	0.59	1.61	0.00069	
Radium-228	214	506	0.51	23.90	51	51	0.36	1.37	0.0014	
Strontium-90 [17]	84	372	0.51	47.60	2	51	0.44	0.56	2.2	
Technetium-99 [17]	43	439	1.02	205.00	0	51	ND	ND	61	
Total Thorium 1	777	1618	0.91	290.00	50	50	2.38	12.3	NA	
Thorium-228	415	560	0.20	19.50	49	50	0.47	1.39	0.00074	
Thorium-230	497	566	0.30	153.00	48	51	0.07	2.34	5.7	
Thorium-232	362	573	0.20	8.07	44	50	0.35	1.35	6.4	
Total Uranium 1	1164	1829	0.50	69300.00	48	51	1.81	3.69	NA	
Uranium-234	418	492	0.20	319.00	48	51	0.48	1.3	4.8	
Uranium 235/236	91	496	0.05	36.20	46	51	0.03	0.2	NA	
Uranium-238	436	508	0.20	317.00	48	51	0.8	1.23	0.11	
Volatile Organic Compounds, ug/Kg										
1,1,1-Trichloroethane	49	381	1.00	6600.00					NA	X
1,1,2,2-Tetrachloroethane	9	378	2.00	190.00					319	
1,1,2-Trichloroethane	6	382	1.00	4.00					1,121	
1,1-Dichloroethane	39	378	1.00	460.00					NA	
1,1-Dichloroethene	25	378	1.00	460.00					106	X
1,2-Dichloroethane	6	377	2.00	10.00					702	
1,2-Dichloroethene (Total)	47	378	1.00	4300.00					273,750	
2-Butanone	27	246	2.00	200.00					16,425,000	
2-Hexanone	7	299	1.00	2600.00					1,095,000	
4-Methyl-2-pentanone	53	304	1.00	2600.00					1,368,750	
Acetone	67	380	4.00	230.00					2,737,500	
Benzene	3	387	1.00	1300.00					2,203	X
Bromodichloromethane	2	378	7	13					1,030	
Carbon tetrachloride	2	382	6	12					491	
Carbon disulfide	94	382	1.00	390.00					2,737,500	
Chlorobenzene	2	382	1.00	2.00					547,500	
Chloroethane	3	378	2	210					NA	
Chloroform	14	378	2.00	160.00					10,471	X
Chloromethane	1	373	12.00	12.00					4,913	
Dibromochloromethane	1	378	1300	1300					760	
Ethylbenzene	7	387	1.00	747.00					2,737,500	
Methylene chloride	46	382	1.00	100.00					8,517	X
Styrene	2	378	1	2					2,129	
Tetrachloroethene	46	381	1.00	21000.00					273,750	X
Toluene	47	387	1.00	794.00					5,475,000	
Total Xylenes	14	383	3.00	31000.00					54,750,000	
Trichloroethene	51	381	1.00	150000.00					5,807	X
Vinyl chloride	6	378	2	110					34	X
trans-1,3-Dichloropropene	1	366	1300	1300					355	

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TABLE A.2-2

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SUBSURFACE SOIL (> 1.5 FEET)

	Sample Statistics Sediments				Background Statistics Sediments					
	Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario	Retained as COC?
Radionuclide/Chemical	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	[6]	
Semivolatile Organic Compounds, ug/Kg										
1,2,4-Trichlorobenzene	1	309	220	220					273,750	
1,4-Dichlorobenzene	1	309	210	210					2,681	
2,4-Dimethylphenol	1	313	100.00	100.00					547,500	
2,4-Dinitrotoluene	1	312	110.00	110.00					94	
2-Chlorophenol	3	309	42	390					136,875	
2-Methylnaphthalene	5	309	45.00	200.00					NA	
2-Nitroaniline	1	309	2400	2400					NA	
4-Chloro-3-methylphenol	4	309	43	88					NA	
4-Methylphenol	1	309	110.00	110.00					1,369,750	
4-Nitrophenol	4	307	58	330					1,697,250	
Acenaphthene	2	308	77.00	250.00					1,642,500	
Acenaphthylene	3	309	780.00	2100.00					NA	
Anthracene	7	312	51.00	1400.00					8,212,500	
Benzo(a)anthracene	20	312	38.00	17000.00					58	X
Benzo(a)pyrene	13	311	63.00	8600.00					9.8	X
Benzo(b)fluoranthene	17	312	39.00	23000.00					71	X
Benzo(g,h,i)perylene	9	312	53.00	5900.00					NA	
Benzo(k)fluoranthene	5	312	98.00	280.00					168	X
Benzoic Acid	8	289	46.00	200.00					109,500,000	
Butyl benzyl phthalate	5	311	46.00	430.00					5,475,000	
Chrysene	19	312	47.00	17000.00					1,896	
Di-n-butylphthalate	17	312	37.00	1400.00					2,737,500	
Di-n-octylphthalate	3	312	50.00	280.00					547,500	
Dibenzo(a,h)anthracene	6	311	42.00	1100.00					7.9	X
Dibenzofuran	3	308	36.00	120.00					NA	
Diethyl phthalate	7	308	43.00	250.00					21,900,000	
Fluoranthene	32	312	40.00	34000.00					1,095,000	
Fluorene	2	307	77.00	370.00					1,095,000	
Hexachlorobutadiene	1	313	350.00	350.00					819	
Indeno(1,2,3-cd)pyrene	11	312	78.00	4900.00					32	X
N-Nitroso-di-n-propylamine	1	301	190	190					9.1	
N-Nitrosodimethylamine	1	2	5	5					1.3	
N-Nitrosodiphenylamine	1	308	72.00	72.00					13,038	
Naphthalene	3	309	52.00	120.00					1,095,000	
Pentachlorophenol	4	312	49	260					532	
Phenanthrene	29	312	39.00	18000.00					NA	
Phenol	8	309	38.00	710.00					18,425,000	
Pyrene	38	312	43.00	30000.00					821,250	
Bis(2-ethylhexyl)phthalate	100	309	3.00	9100.00					4,563	
Pesticides/PCBs, ug/Kg										
Aroclor 1248	1	253	110	110					8.3	
Aroclor 1254	23	254	9.90	1700.00					8.3	X
Aroclor 1260	5	254	10.00	2700.00					8.3	X
Endosulfan I	1	252	1.9	1.9					NA	
Endrin aldehyde	1	104	5.00	5.00					NA	
Methoxychlor	1	252	22	22					136,875	
Alpha-BHC	1	253	17	17					10	
PCDDs and PCDFs, ng/g (ug/Kg)										
Octachlorodibenzofuran	1	6	1500.00	1500.00					0.43	X

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TABLE A.2-2

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SUBSURFACE SOIL (> 1.5 FEET)

	Sample Statistics Sediments				Background Statistics Sediments					
	Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario	Retained as COC?
	Number Positive	Total Number	Minimum Detected	Maximum Detected	Number Positive	Total Number	Minimum Detected	Maximum Detected		
Radionuclide/Chemical	Hits	Samples	Conc.	Conc.	Hits	Samples	Conc.	Conc.	[6]	
Inorganics, mg/Kg										
Aluminum	338	338	1100.00	142000.00	51	51	3250	16100	NA	
Antimony	11	145	1.20	22.10	0	37	ND	ND	11	
Arsenic	308	312	0.03	74.20	44	51	1.6	14.5	0.037	
Barium	342	342	9.90	3610.00	51	51	13.7	134	1,916	
Beryllium	231	333	0.29	5.20	15	50	0.48	0.68	0.015	
Cadmium	172	328	0.92	8.00	6	51	0.47	1.3	14	
Calcium	338	338	2180.00	314000.00	51	51	3310	335000	NA	
Chromium	327	329	4.70	115.00	51	51	4.5	22.4	137	
Cobalt	309	338	2.60	105.00	51	51	3.6	17.9	1,643	
Copper	304	336	5.00	171.00	50	51	6.8	24.3	NA	
Cyanide	35	313	0.11	9.80	1	51	0.17	0.17	548	
Iron	338	338	4000.00	193000.00	51	51	8970	30700		
Lead	339	339	0.47	139.00	47	51	3	18.4	NA	
Magnesium	338	338	1390.00	93200.00	51	51	2930	54100	285,538	
Manganese	338	338	107.00	12200.00	51	51	251	1760	137	
Mercury	14	342	0.04	2.30	1	51	0.29	0.29	8.2	
Molybdenum	113	317	1.60	11.10	1	51	2.7	2.7	137	
Nickel	292	325	8.70	186.00	51	51	8.5	41.9	548	
Potassium	337	338	204.00	10900.00	51	51	340	2180		
Selenium	27	300	0.32	3.30	0	51	ND	ND	137	
Silicon	139	152	17.60	5950.00	51	51	449	1850		
Silver	164	320	0.41	31.10	0	51	ND	ND	137	
Sodium	287	338	42.20	1700.00	51	51	53.8	345		
Thallium	30	337	0.21	0.72	3	51	0.49	0.55	1.9	
Vanadium	334	338	4.70	190.00	51	51	8.4	44.5	192	
Zinc	332	338	16.70	780.00	51	51	27.3	101	8,213	

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TABLE A.2-2

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SUBSURFACE SOIL (> 1.5 FEET)

NOTES:

(1) Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

(2) Ranges and means of detected concentrations presented are inclusive of all depth intervals.

(3) Mean background concentration and upper tolerance limit values (UTLs) are for the 0" - 6" depth interval. Mean background concentrations and UTLs presented for radionuclides are for parent isotopes only and do not represent values for daughter products. Refer to Tables 1 and 2 of interoffice correspondence from Dennis Carr (4/2/93) regarding background soil values to be adopted in FEMP CERCLA/RCRA activities.

(4) Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

(5) Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

(6) RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

(7) Presented as the number of detected concentrations of a contaminant exceeding the corresponding RBC over the total number of detected concentrations of that contaminant.

(8) Radionuclide concentrations presented are in units of pCi/g.

(9) "+D" indicates that risks from exposures to decay chain products were incorporated into the Fermco PRG.

(10) Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/kg.

(11) PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/g (ug/kg).

(12) Concentrations presented for inorganics and miscellaneous parameters are in units of mg/kg.

(13) RBC presented for uranium is for the soluble salts of uranium.

(14) RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

(15) RBC presented for endosulfan I and endosulfan II is for endosulfan.

(16) RBC presented for alpha- and gamma-chlordane is for chlordane.

(17) This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Glacial Overburden - Type 1 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Glacial Overburden - Type 1 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC? (Yes/No)
	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec.	Unfiltered Min/Max Detec.	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec. Conc.	Unfiltered Min/Max Detec. Conc.			
Radionuclides, pCi/L											
Cesium-137	6/86	4/131	5.7 - 24	4.9 - 20					0.17	110 [19]	
Neptunium-237	17/61	5/308	0.537 - 6.81	0.626 - 1.94		3/10		0.043 - 0.25	0.022	1.23 [19]	
Plutonium-238	11/74	6/326	0.69 - 22.4	0.56 - 1		1/13		0.075 - 0.075	0.022	1.71 [19]	
Plutonium-239/240	10/75	3/327	0.506 - 2.67	1-1					0.021	1.55 [19]	
Radium, Total		3/3		1 - 1						NA	
Radium-226	38/202	147/557	1.07 - 241	1.01 - 279	1/4	9/22	0.9 - 0.9	0.14 - 0.9	0.032	4.17 [19][20]	
Radium-228	40/199	49/549	3.1 - 820	3.090-219	1/4	4/22	2.2 - 2.2	1.9 - 5.2	0.048	6,035 [19]	
Ruthenium-106 [18]	1/79		192 -192						0.50	35.8 [19]	
Strontium-90 [18]	25/92	22/295	1.09 - 152	1.01 - 106		1/16	2 - 2		0.13	3,753 [19]	
Technetium-99 [18]	74/185	107/504	15.1 - 3520	15.8 - 6130	1/4	2/26	30 - 30	30 - 49.3	3.7	NA	
Total Thorium [26]	58/101	223/478	0.912 - 5390	0.7 - 23000		1/10		3.1 - 3.1		6.78 [19]	
Thorium-228	41/179	246/606	0.3 - 634	0.216 - 19	1/2	11/24	0.1 - 0.1	0.23 - 1.62	0.087	10 [19]	
Thorium-230	71/180	264/607	0.25 - 12200	0.202 - 28		11/25		0.14 - 2	0.37	2.01 [19]	
Thorium-232	32/179	136/553	0.216 - 592	0.234 - 23.1		3/14		0.2 - 0.34	0.4	400 [19]	
Total Uranium [26]	368/382	1173/1225	0.29 - 23000000	0.00-696000	2/3	8/15	1.0 - 1.4	0.48 - 1.5		7 [MCL][P]	
Uranium-234	178/181	575/633	0.3 - 147000	0.001-127982	1/1	9/13	0.6 - 0.6	0.25 - 1.1	0.30	20.4 [19]	
Uranium-235		44/51		0.015 - 680							
Uranium-236		40/41		0.002 - 450							
Uranium-235/236	115/182	258/590	0.236 - 27200	0.208 - 7494					0.30	7 [MCL][P]	
Uranium-238	176/181	579/650	0.400 - 426000	.252 - 121642		9/13		0.23 - 0.99	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
1,1,1-Trichloroethane	19/30	73/571	1 - 840000	0.5 - 360					151	5 [MCL][F]	
1,1,2,2-Tetrachloroethane	1/31	4/573	6 - 6	1 - 5					0.0090	NA	X
1,1,2-Trichloroethane	1/31	3/573	1 - 1	1 - 2					0.032	7 [MCL][F]	
1,1-Dichloroethane	14/31	113/618	10-500000	1 - 800						40 [Lifetime HA, 70 kg adult][F]	X
1,1-Dichloroethene	15/31	50/576	2 - 12000	1 - 490						0.2 [MCL][F]	X
1,2-Dichloroethane	14/31	20/598	1 - 1100	1 - 140						400 [ten day HA, 10 kg child)[F]	X
1,2-Dichloroethene (Total)	3/31	68/517	1 - 180	0.6 - 1000						NA	X
2-Butanone	20/31	10/526	4 - 3500	1 - 67						NA	X
2-Hexanone	18/31	4/557	1 - 89	1 - 6						NA	
4-Methyl-2-pentanone	20/31	12/558	2 - 210	2 - 18						NA	X
Acetone	21/30	30/591	4 - 3800	2 - 290						NA	X
Benzene	8/31	18/596	1-55	0.5 - 14						100[MCL][T]	X
Bromodichloromethane		2/604		3 - 5						10 [Lifetime HA, 70 kg adult][F]	
Bromoform	1/31	2/573	5 - 5	1 - 2						5[MCL][F]	X
Carbon tetrachloride		6/573		3 - 21						100[MCL][F]	X
Carbon disulfide	2/31	12/556	1 - 2	1-9						NA[D]	X
Chlorobenzene	1/31	2/573	4 - 4	1 - 1						100[MCL][T]	

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Glacial Overburden - Type 1 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Glacial Overburden - Type 1 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC? (Yes/No)
	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec.	Unfiltered Min/Max Detec.	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec. Conc.	Unfiltered Min/Max Detec. Conc.			
Chloroethane	6/31	7/504	2 - 1700	1 - 26						3 [Lifetime HA, 70 kg adult][F]	
Chloroform	19/31	13/573	1 - 1300	1.6 - 47						NA	X
Chloromethane	1/31	2/568	3 - 3	.6 - 2						NA	X
Dibromochloromethane		1/573		1 - 1						5 [MCL][F]	
Dichlorodifluoromethane		1/32		7.4 - 7.4							
Ethylbenzene	9/31	4/592	1 - 22	1 - 38						NA	
Isobutyl alcohol	7/15		19 - 2100							5[MCL][F]	X
Methylene chloride	7/31	9/617	20 - 490	1 - 19						NA	X
Styrene		1/559		3 - 3						1000[MCL][F]	
Tetrachloroethene	12/31	58/619	1 - 140	0.7 - 2600						10,000[MCL][F]	X
Toluene	13/31	19/641	1 - 180	1 - 50						5[MCL][F]	X
Total Xylenes	15/31	8/582	1 - 130	2-400						2000 [Lifetime HA, 70 kg adult][F]	
Trans-1,2-Dichloroethene		5/177		6 - 18							
Trichloroethene	11/31	67/617	1-120	1-12000						NA	X
Trichlorofluoromethane	2/16		1 - 2							2[MCL][F]	
Vinyl acetate		2/467		1 - 2						0[T][[MCLG][21]	
Vinyl chloride	10/31	19/572	1 - 160	1 - 120						100[MCL][F]	X
cis-1,3-Dichloropropene	1/31		1 - 1							0[T][[MCLG][21]	
Semivolatile Organic Compounds, ug/L											
1,2,4-Trichlorobenzene	3/25		3 - 5							NA	X
1,2-Dichlorobenzene		1/181		4 - 4						600 [MCL][F]	
2,3,4,6-Tetrachlorophenol		1/9		4.2 - 4.2							
2,4-Dichlorophenol	1/18		4 - 4							100 [DWEL, 70 kg adult][F]	
2,4-Dimethylphenol	7/19		12 - 86							NA	X
2,4-Dinitrophenol	4/21		2 - 24							40 [DWEL, 70 kg adult][F]	X
2,6-Dinitrotoluene	3/25	4/206	3 - 11	4 - 6						40 [Lifetime HA, 70 kg adult][D]	X
2-Benzyl-4-Chlorophenol	1/12		32-32								
2-Chlorophenol	1/18	1/195	4 - 4	160 - 160						NA	X
2-Methylnaphthalene	4/25		1 - 16							NA	
2-Methylphenol	5/19		6 - 110							NA	
2-Nitrophenol	3/20	2/194	3 - 5	2 - 7.2						NA	
4,6-Dinitro-2-methylphenol	2/19		3 - 12							NA	
4-Chloro-3-methylphenol	4/20	1/194	3 - 49	200 - 200						NA	
4-Methylphenol	9/22		1 - 140							NA	
4-Nitrophenol	3/19	3/190	2 - 12	3 - 80						NA	
Acenaphthene	4/26	1/194	4 - 12	3 - 3						NA	
Anthracene	3/28		2 - 17							0.2[MCL][F]	
Benzo(a)anthracene	1/28		1 - 1							NA	
Benzoic Acid	5/14	6/166	1 - 150	2 - 4						NA	

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Glacial Overburden - Type 1 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Glacial Overburden - Type 1 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC? (Yes/No)
	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec.	Unfiltered Min/Max Detec.	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec. Conc.	Unfiltered Min/Max Detec. Conc.			
Benzyl alcohol	2/17		1 - 3							NA	
Butyl benzyl phthalate		3/205		1-4						0.2[MCL][P]	
Carbazole	2/18		7 - 18							4000 [DWEL, 70 kg adult]	X
Chrysene	1/28		2 - 2							NA	
Di-n-butylphthalate		4/205		0.4 - 60						0.3[MCL][P]	
Dibenzofuran	3/26		2 - 8							NA	
Diethyl phthalate	2/25	9/206	2 - 14	0.6 - 25						200 [Lifetime HA, 70 kg adult][F]	
Fluoranthene	3/28		2 - 9							1[MCLG][T]	
Fluorene	4/26		4 - 13							50[MCL][F]	
Hexachloroethane	1/25		19 - 19							0.4[MCL][P]	
N-Nitroso-di-n-propylamine	1/25	2/203	1 - 1	2 - 8						NA	X
N-Nitrosodiethylamine		1/11		4 - 4							
N-Nitrosodiphenylamine		3/206		2 - 17						NA	X
Naphthalene	10/25	1/205	1 - 16	2 - 16						NA	
Nitrobenzene	2/25		5 - 6							NA	X
Pentachlorophenol	3/20	3/195	3 - 200	5 - 200						4000 [lifetime HA, 70 kg adult][D]	X
Phenanthrene	1/27		35 - 35							50 [Lifetime HA, 70 kg adult][F]	
Phenol	5/16	8/196	25 - 220	1 - 220						NA	
Pyrene	2/29	1/205	7 - 8	5 - 8						NA	
Tributyl phosphate	2/6	8/59	89 - 130	1 - 450						NA	X
Bis(2-ethylhexyl)phthalate	5/28	16/205	1 - 7	0.4 - 350						NA	X
Pesticides/PCBs, ug/L											
4-4'-DDT		1/183		3 - 3						0.5[MCL][F][22]	
Aroclor 1248	1/15		3.1 - 3.1							2[MCL][F]	
Chlorobenzilate	1/15		10 - 10							0.5 [one day HA, 10 kg child][F]	
Heptachlor epoxide		1/183	0.058 - 0.058							NA	
PCDDs and PCDFs, ng/L											
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	1/13		0.64 - 0.64							NA	
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	2/13		1.9 - 3.3								X
Octachlorodibenzo-p-dioxin	5/13		1.6 - 25.5							NA	X
1,4-Dioxane	9/10		12 - 1000							NA	
Heptachlorodibenzo-p-dioxin	2/13		1.2 - 3.5							NA	X
2,3,7,8-Tetrachlorodibenzofuran	1/13		2.6 - 2.6							NA	X
2,3,4,7,8-Pentachlorodibenzofuran	1/13		0.91 - 0.91							NA	X
Octachlorodibenzofuran	4/13		0.55 - 1.6							NA	X
Tetrachlorodibenzofuran	2/13	1/9	3 - 12.4	0.120 - 0.120						NA	X
Pentachlorodibenzofuran	1/13	1/9	5.9 - 5.9	0.35 - .35							X
Hexachlorodibenzofuran		1/8		0.32 - 0.32						70 [Lifetime HA, 70 kg adult][F]	X
Heptachlorodibenzofuran	2/13			0.92 - 1.5						50 [MCL][F]	X

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Glacial Overburden - Type 1 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Glacial Overburden - Type 1 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC? (Yes/No)
	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec.	Unfiltered Min/Max Detec.	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec. Conc.	Unfiltered Min/Max Detec. Conc.			
Inorganics, mg/L											
Aluminum	198/477	347/406	0.004 - 43.5	0.043 - 10500	3/7	2/5	0.0375 - 0.123	0.774 - 2.29		2.00[MCL][F]	
Antimony	54/414	53/374	0.002 - 0.679	0.005 - 0.956	2/4		0.0141 - 0.0272		0.0015	0.004[MCL][F]	
Arsenic	123/607	225/406	0.001 - 0.515	0.001 - 1.49	5/17	3/5	0.0042 - 0.122	0.0031 - 0.0194	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	484/634	298/396	0.008 - 2.69	0.006 - 3.35	22/23	5/5	0.034 - 0.452	0.0486 - 0.454	0.26	0.005[MCL][F]	
Beryllium	47/454	58/392	0.001 - 0.101	0.001 - 0.081	2/6		0.001 - 0.0018		0.0000020	NA	
Boron	9/11	16/18	0.24 - 2.23	0.228 - 7.36					0.33	0.100[MCL][F][23]	
Cadmium	121/592	77/383	0.002 - 0.279	0.001 - 0.475	2/22		0.006 - 0.007		0.0018	NA	
Calcium	636/640	417/417	4.65 - 4000	24.5 - 4580	25/25	5/5	74.4 - 155	81.1 - 172	NA	1.30[MCLG][F][24]	
Chromium	172/528	305/514	0.002 - 2.75	0.002 - 3.48	8/24	1/5	0.006 - 0.0345	0.0046 - 0.0046	0.018	0.200[MCL][P]	
Cobalt	62/465	134/404	0.004 - 1.78	0.006 - 0.595					0.22	NA	
Copper	142/634	204/397	0.003 - 1.5	0.004 - 1.030	4/23	3/5	0.013 - 0.03	0.0053 -0.0294	NA	NA	
Cyanide	27/157	31/439	0.004 - 1.27	0.002 - 0.552					0.073	0.015[25]	
Iron	364/639	378/410	0.005 - 60.2	0.027 - 1110	18/25	5/5	0.0467 - 4.9	0.29 - 6.35	NA	0.200[MCLG][LR]	
Lead	106/630	223/427	0.001 - 1.82	0.001 - 1.61	6/17	3/4	0.0014 - 0.0087	0.0013 - 0.0016	NA	.010 [longer term HA, 10 kg child][F]	
Magnesium	634/637	414/415	0.738 - 4730	0.782 - 4950	25/25	5/5	20.4 - 47.8	23.1 - 50.7	35	0.100 [MCL][F]	
Manganese	529/614	398/407	0.002 - 559	0.004 - 558	19/23	4/5	0.0025 - 0.22	0.0035 - 0.205	0.018	NA	
Mercury	55/582	19/372	0.0000002 - 30.2	0.0000002 - 0.027	1/22		0.0004 - 0.0004		0.0011	NA	
Molybdenum	138/475	96/281	0.005 - 804	0.0000885 - 708	2/20		0.017 - 0.028		0.018	NA	
Nickel	199/636	240/408	0.004 - 13.4	0.004 - 2.13	4/24	1/5	0.021 - 0.026	0.0072 - 0.0072	0.073	NA	
Potassium	516/565	375/389	0.001 - 12400	0.337 - 1280	21/23	4/5	0.891 - 31.5	0.963 - 17.2	0.018	NA	
Selenium	44/565	37/362	0.001 - 0.178	0.001 - 0.14					0.018	NA	
Silicon	145/147	107/107	0.338 - 41.7	0.0001168 - 102	4/4	4/4	5.62 - 7.43	5.6 - 10.7		NA	
Silver	110/627	80/405	0.003 - 1.29	0.001 - 1.31	5/25	1/5	0.0105 - 0.052	0.0031 - 0.0031	0.018	NA	
Sodium	591/594	412/415	1.6 - 5260	2.59 - 4620	23/23	5/5	5.71 - 56.3	8.81 - 50	0.00026	NA	
Thallium	13/393	16/371	0.001 - 0.422	0.001 - 0.435					0.00026	0.020 [MCL][P]	
Vanadium	113/472	174/405	0.003 - 2.58	0.005 - 3.25	2/7	1/5	0.018 - 0.0195	0.0051 - 0.0051	0.026	2.00 [Lifetime HA, 70 kg adult][F]	
Zinc	196/466	267/402	0.002 - 1.78	0.0000939 - 3380	5/7	4/5	0.0104 -0.0443	0.00192 - 0.352	1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L											
Ammonia	16/17	297/529	0.2 - 2625	0.00014 - 253		11/22		0.1 - 4.5	NA	NA	
Chloride	14/16	639/666	1102 - 33000	0.032 - 6300		20/25		1.4 - 50		1 [MCL][F]	
Fluoride	5/11	624/628	8.55 - 61	0.1 - 8.12		25/25		0.2 - 1.3	0.22	NA	
Nitrate	13/17	390/616	0.759 - 6574	0.012 - 2673		9/11		0.012 - 0.3	5.8	NA	
Nitrate as Nitrogen		128/170		0.02 - 3440							
Nitrate/Nitrite		112/170		0.02 - 10000		1/4		0.07 - 0.07		250 [SMCL][F]	
Nitrite, as Nitrogen		11/40		0.04 - 122					0.37	NA	
Phenols		133/600		0.002 - 0.47		11/21		0.007 - 0.03			
Phosphate	2/7	9/10	0.381 - 4.97	0.1 - 5.6		1/1		0.191		NA	
Phosphorus	9/11		0.15 - 32			12/20		0.026 - 0.18			

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Glacial Overburden - Type 1 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Glacial Overburden - Type 1 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC? (Yes/No)
	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec.	Unfiltered Min/Max Detec.	Filtered Number of Hit/ Samples	Unfiltered Number of Hit/ Samples	Filtered Min/Max Detec. Conc.	Unfiltered Min/Max Detec. Conc.			
Sulfate	10/16	653/667	1.85 - 4800	0.17 - 6200		22/25		3 - 175			
Sulfide	1/18	10/168	1.48 - 1.48	0.620 - 7.87							

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.
[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.
[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL.Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.
[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.
[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.
[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.
[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".
[8] Background information is for total chromium.
[9] Radionuclide concentrations presented are in units of pCi/L.
[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.
[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.
[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.
[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.
[14] RBC presented for uranium is for the soluble salts of uranium.
[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.
[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.
[17] RBC presented for alpha- and gamma-chlordane is for chlordane.
[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).
[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.
[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[21] Drinking water standard for 1,3-dichloropropene.
[22] As applicable to PCBs in general.
[23] As applicable to total chromium.
[24] Action level for copper is 1,300 µg/L.

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TABLE A.2-3

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GLACIAL OVERBURDEN - TYPE 1 MONITORING WELLS

[25] Action level for lead is 15 μg/L.
[26] Background concentrations are in ug/L.
NA Information not available.
ND All concentrations were below corresponding SQLs.
[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).
[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).
[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.
[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[D] Draft
[F] Final
[LR] Listed for regulation
[P] Proposed
[T] Tentative
[*] Currently undergoing review.

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TABLE A.2-4

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 2 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 2 Wells: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 2 Wells: Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Radionuclides, pCi/L											
Cesium-137	2	177	20.000	20.000	2	70	5.8000	6.7000	0.17	110 [19]	
Neptunium-237+1D	9	482	0.520	1.000	4	81	0.2500	0.6200	0.022	1.23 [19]	
Plutonium-238	3	503	0.637	1.000	6	62	0.0220	0.0890	0.022	1.71 [19]	
Plutonium-239/240	7	499	0.675	1.400	5	59	0.0160	0.0830	0.021	1.55 [19]	
Potassium-40	2	3	0.000	55.000					0.43	295 [19]	
Total Radium	4	4	1.000	2.360						NA	
Radium-226	88	753	1.010	14.900	56	105	0.0710	2.0000	0.032	4.17 [19][20]	
Radium-228	36	751	3.100	15.300	23	106	1.0000	52.0000	0.048	6,035 [19]	
Strontium-90 [18]	28	459	1.200	38.500	4	87	0.6500	4.8000	0.13	3,753 [19]	
Technetium-99 [18]	51	589	15.400	6860.000	2	99	22.0000	26.0000	3.7	NA	
Total Thorium 1	104	639	0.000	34.800	3	50	0.9700	2.1000		6.78 [19]	
Thorium-228	218	833	0.214	15.300	37	101	0.0750	2.9000	0.087	10 [19]	
Thorium-230	258	840	0.211	15.000	44	98	0.1800	2.5000	0.37	2.01 [19]	
Thorium-232	43	779	0.221	3.860	9	71	0.1000	0.7700	0.4	400 [19]	
Total Uranium 1	1068	1221	0.000	2070.000	69	115	0.1000	3.1000		7 [MCL][P]	
Uranium-234	600	814	0.230	662.000	65	98	0.1400	1.3000	0.30	20.4 [19]	
Uranium-235/236	185	807	0.201	60.300	5	97	0.0940	0.2600	0.32		
Uranium-235	10	19	0.014	4.000					0.30	7 [MCL][P]	
Uranium-236	8.00	9.00	0.004	1.000							
Uranium-238	588	825	0.209	707.000	42	104	0.1400	0.9300	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
1,1,1-Trichloroethane	30	563	0.700	550.000					151	5 [MCL][F]	
1,1,2,2-Tetrachloroethane	1	551	3.000	3.000					0.0090	NA	X
1,1-Dichloroethane	15	594	1.100	58.000					97	40 [Lifetime HA, 70 kg adult][F]	X
1,1-Dichloroethene	1	560	110.000	110.000					0.0067	0.2 [MCL][F]	X
1,2-Dichloroethane	1	577	310.000	310.000					0.020	400 [ten day HA, 10 kg child][F]	X
cis-1,2-Dichloroethene (Total)	9	501	3.000	8.300					37	NA	X
2-Butanone	9	528	1.000	64.000					2,190	NA	X
2-Hexanone	5	539	1.000	17.000					146	NA	
4-Methyl-2-pentanone	3	541	2.000	13.000					183	NA	X
Acetone	33	579	1.000	83.400					365	NA	X
Benzene	9	570	1.000	160.000					0.062	100[MCL][T]	X
Bromoform	1	552	2.000	2.000					0.38	5[MCL][F]	X
Carbon disulfide	19	540	1.000	26.000					2.8	NA[D]	X
Chloroform	8	553	1.000	29.000					0.028	NA	X
Chloromethane	2	537	2.000	13.000					0.23	NA	X
Ethylbenzene	4	555	1.000	21.000					158	NA	
Methylene chloride	13	606	0.500	14.000					0.63	NA	X

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TABLE A.2-4

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 2 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 2 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 2 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Tetrachloroethene	2	608	1.300	3.000					37	10,000[MCL][F]	X
Toluene	10	612	0.800	5.000					93	5[MCL][F]	X
Total Xylenes	9	558	1.000	190.000					7,300	2000 [Lifetime HA, 70 kg adult][F]	
Trichloroethene	12	606	1.000	243.000					0.25	NA	X
Trichlorofluoromethane	1	46	66.000	66.000					165	2[MCL][F]	
Vinyl chloride	1	553	1.200	1.200					0.0028	100[MCL][F]	X
trans-1,2-Dichloroethene	1	235	1.500	1.500					73	NA	
Semivolatile Organic Compounds, ug/L											
2,4-Dimethylphenol	1	35	170.000	170.000					73	NA	X
4-Nitrophenol	1	128	3.000	3.000					226	NA	
Butyl benzyl phthalate	19	140	1.000	4.000					730	0.2[MCL][F]	
Di-n-butylphthalate	14	139	0.700	60.000					365	0.3[MCL][F]	
Di-n-octylphthalate	1	125	2.000	2.000					73	NA	
Diethyl phthalate	3	140	1.000	20.000					2,920	200 [Lifetime HA, 70 kg adult][F]	
Isophorone	1	140	2.000	2.000					9.0	NA	
Phenol	8	137	2.000	50.000					2,190	NA	
Bis(2-ethylhexyl)phthalate	19	140	0.800	50.000					0.61	NA	X
Pesticides/PCBs, ug/L											
Aldrin	1	126	0.110	0.110					0.00050	0.5[MCL][F][22]	
Endosulfan II	1	124	0.150	0.150					NA	2 [MCL][F]	
Endosulfan sulfate	1	126	2.600	2.600					NA	NA	
Heptachlor	1	126	0.070	0.070					0.00039	40[MCL][F]	
PCDDs and PCDFs, ng/L											
PCDDs										NA	
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1	15	1.700	1.700					0.000000057	NA	X
Octachlorodibenzo-p-dioxin	1	12	0.700	0.700						NA	X
PCDFs										NA	
2,3,7,8-Tetrachlorodibenzofuran	1	10	1.200	1.200						NA	X
Total PCDFs										NA	
Tetrachlorodibenzofuran	1	17	0.220	0.220						NA	X
Pentachlorodibenzofuran	1	17	0.310	0.310							X
Hexachlorodibenzofuran	1	17	0.380	0.380						70 [Lifetime HA, 70 kg adult][F]	X
Inorganics, mg/L											
Aluminum	199	375	0.016	208.000	4	15	0.0600	0.2250		2.00[MCL][F]	
Antimony	11	348	0.001	0.175					0.0015	0.004[MCL][F]	
Arsenic	140	389	0.001	0.350	7	16	0.0011	0.0294	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	246	379	0.003	23.600	14	16	0.0368	0.7680	0.26	0.005[MCL][F]	
Beryllium	5	371	0.002	0.012					0.0000020	NA	
Cadmium	38	356	0.002	4.700	3	16	0.0022	0.0135	0.0018	NA	

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TABLE A.2-4

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 2 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 2 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 2 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Calcium	378	379	1.630	101000.000	16	16	78.0000	162.0000	NA	1.30[MCLG][F][24]	
Chromium	181	524	0.002	27.200	2	16	0.0067	0.0211	0.018	0.200[MCL][P]	
Cobalt	25	371	0.005	0.305	1	15	0.0086	0.0086	0.22	NA	
Copper	79	379	0.004	10.300	2	16	0.0110	0.0350	NA	NA	
Cyanide	8	401	0.001	0.044					0.073	0.015[25]	
Iron	341	380	0.006	913.000	14	15	0.3120	5.5000	NA	0.200[MCLG][LR]	
Lead	140	403	0.001	0.262	1	15	0.0020	0.0020	NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	379	379	0.285	32100.000	16	16	20.1000	39.0000	35	0.100 [MCL][F]	
Manganese	336	380	0.001	139.000	16	16	0.0043	0.9040	0.018	NA	
Mercury	6	363	0.000	0.001					0.0011	NA	
Molybdenum	18	232	0.007	573.000					0.018	NA	
Nickel	105	380	0.004	3.930	1	16	0.0514	0.0514	0.073	NA	
Phosphorus					75	102	0.0100	3.0800		0.100 [Lifetime HA, 70 kg adult][D]	
Potassium	329	370	0.724	182.000	13	16	0.6480	1.9600			
Selenium	37	355	0.001	0.056	1	5	0.0008	0.0008	0.018	NA	
Silicon	42	42	2.050	5760.000	1	1	5.8100	5.8100		NA	
Silver	15	376	0.003	24.000	1	16	0.0117	0.0117	0.018	NA	
Sodium	389	391	3.730	11900.000	16	16	3.0800	50.4000			
Thallium	2	349	0.001	0.002					0.00026	0.020 [MCL][P]	
Vanadium	34	375	0.003	14.600	2	16	0.0008	0.0117	0.026	2.00 [Lifetime HA, 70 kg adult][F]	
Zinc	175	375	0.005	1.180	2	14	0.0087	0.0210	1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L											
Ammonia	353	817	0.020	17.000	40	101	0.0450	12.6000	NA	NA	
Chloride	989	1013	0.003	661.000	98	110	0.0200	120.0000		1 [MCL][F]	
Fluoride	877	927	0.000	4.500	110	113	0.1000	1.9000	0.22	NA	
Nitrate	386	479	0.000	216.000	52	64	0.0140	24.9000	5.8	NA	
Nitrate/Nitrite	116	169	0.020	210.000	4	12	0.0200	4.1000		250 [SMCL][F]	
Nitrite, as Nitrogen	6	33	0.030	3.000					0.37	NA	
Phenols					46	94	0.0058	0.0910			
Phosphate	13	13	0.010	7.200						NA	
Phosphorus	588	804	0.001	541.000	75	102	0.0100	3.0800			
Sulfate	986	1010	0.042	5431.000	101	110	2.7900	321.0000			
Sulfide	56	289	0.020	310.000							

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL.Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.

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TABLE A.2-4

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 2 MONITORING WELLS

[4] Fernoo soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fernoo derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".

[8] Background information is for total chromium.

[9] Radionuclide concentrations presented are in units of pCi/L.

[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.

[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.

[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.

[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.

[14] RBC presented for uranium is for the soluble salts of uranium.

[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[17] RBC presented for alpha- and gamma-chlordane is for chlordane.

[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.

[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[21] Drinking water standard for 1,3-dichloropropene.

[22] As applicable to PCBs in general.

[23] As applicable to total chromium.

[24] Action level for copper is 1,300 μg/L.

[25] Action level for lead is 15 μg/L.

NA Information not available.

ND All concentrations were below corresponding SQLs.

[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).

[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).

[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.

[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[D] Draft

[F] Final

[LR] Listed for regulation

[P] Proposed

[T] Tentative

[*] Currently undergoing review.

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TABLE A.2-5

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 3 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 3 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 3 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Semivolatile Organic Compounds, ug/L											
Butyl benzyl phthalate	6	34	1.000	3.000					730	0.2[MCL][P]	
Di-n-butylphthalate	4	34	0.800	36.000					365	0.3[MCL][P]	
Diethyl phthalate	2	34	1.000	2.000					2,920	2000 [Lifetime HA, 70 kg adult][F]	
Phenol	3	35	2.000	17.000					2,190	NA	
Bis(2-ethylhexyl)phthalate	7	34	0.400	17.000					0.61	NA	X
Pesticides/PCBs, ug/L											
Dieldrin	1	32	0.016	0.016					0.00053	NA	
Endosulfan I	1	32	0.025	0.025					NA	NA	
PCDDs and PCDFs, ng/L											
Tetrachlorodibenzo-p-dioxin	1	7	3.800	3.800						NA	X
Tetrachlorodibenzofuran	1	7	1.100	1.100						NA	X
Pentachlorodibenzofuran	1	7	0.430	0.430							X
Inorganics, mg/L											
Aluminum	55	220	0.021	4.030	4	15	0.0600	0.2250		2.00[MCL][F]	
Antimony	3	200	0.070	0.096					0.0015	0.004[MCL][F]	
Arsenic	56	231	0.001	0.234	7	16	0.0011	0.0294	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	143	221	0.022	720.000	14	16	0.0368	0.7680	0.26	0.005[MCL][F]	
Beryllium	4	220	0.002	0.178					0.0000020	NA	
Cadmium	11	201	0.003	0.211	3	16	0.0022	0.0135	0.0018	NA	
Calcium	221	221	5.800	308.000	16	16	78.0000	162.0000	NA	1.30[MCLG][F][24]	
Chromium	83	314	0.002	0.405	2	16	0.0067	0.0211	0.018	0.200[MCL][P]	
Cobalt	12	220	0.005	0.528	1	15	0.0086	0.0086	0.22	NA	
Copper	26	221	0.003	0.303	2	16	0.0110	0.0350	NA	NA	
Cyanide	2	210	0.261	0.360					0.073	0.015[25]	
Iron	202	221	0.012	78.900	14	15	0.3120	5.5000	NA	0.200[MCLG][LR]	
Lead	51	221	0.001	1.150	1	15	0.0020	0.0020	NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	221	221	14.100	76.600	16	16	20.1000	39.0000	35	0.100 [MCL][F]	
Manganese	218	221	0.002	3.330	16	16	0.0043	0.9040	0.018	NA	
Mercury	6	209	0.0000002	0.143					0.0011	NA	
Molybdenum	2	117	0.015	0.086					0.018	NA	
Nickel	19	221	0.005	0.547	1	16	0.0514	0.0514	0.073	NA	
Phosphorus					75	102	0.0100	3.0800		0.100 [Lifetime HA, 70 kg adult][D]	
Potassium	173	211	0.819	268.000	13	16	0.6480	1.9600			
Selenium	20	201	0.001	0.234	1	5	0.0008	0.0008	0.018	NA	
Silicon	4	4	3.350	8.830	1	1	5.8100	5.8100		NA	
Silver	8	221	0.003	0.080	1	16	0.0117	0.0117	0.018	NA	
Sodium	231	231	3.080	439.000	16	16	3.0800	50.4000			
Thallium	3	197	0.057	0.093					0.00026	0.020 [MCL][P]	

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TABLE A.2-5

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 3 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 3 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 3 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Radionuclides, pCi/L											
Cesium-137					2	70	5.8000	6.7000	0.17	110 [19]	
Neptunium-237 + 1D					4	81	0.2500	0.6200	0.022	1.23 [19]	
Plutonium-238	3	282	0.650	2.700	6	62	0.0220	0.0890	0.022	1.71 [19]	
Plutonium-239/240	2	278	0.600	0.600	5	59	0.0160	0.0830	0.021	1.55 [19]	
Total Radium	2	2	1.000	1.000						NA	
Radium-226	36	429	1.070	8.500	56	105	0.0710	2.0000	0.032	4.17 [19][20]	
Radium-228	16	440	3.100	7.100	23	106	1.0000	52.0000	0.048	6,035 [19]	
Strontium-90 [18]	3	276	1.830	6.210	4	87	0.6500	4.8000	0.13	3,753 [19]	
Technetium-99 [18]	6	346	24.400	44.500	2	99	22.0000	26.0000	3.7	NA	
Total Thorium 1	72	360	0.600	2000.000	3	50	0.9700	2.1000		6.78 [19]	
Thorium-228	89	488	0.236	5.530	37	101	0.0750	2.9000	0.087	10 [19]	
Thorium-230	113	488	0.243	9.860	44	98	0.1800	2.5000	0.37	2.01 [19]	
Thorium-232	25	454	0.221	1.100	9	71	0.1000	0.7700	0.4	400 [19]	
Thorium-234	266	475	171.000	475.000					1.2	NA	
Total Uranium 1	545	753	0.100	110.000	69	115	0.1000	3.1000		7 [MCL][P]	
Uranium-234	266	475	0.222	32.000	65	98	0.1400	1.3000	0.30	20.4 [19]	
Uranium-235	7	13	0.100	0.130							
Uranium-236	6	7	0.003	0.099							
Uranium-235/236	41	466	0.203	1.960	5	97	0.0940	0.2600	0.32		
Uranium-238	237	480	0.203	31.600	42	104	0.1400	0.9300	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
1,1-Dichloroethene	2	314	2.000	2.000					0.0067	0.2 [MCL][F]	X
2-Butanone	7	304	3.000	270.000					2,190	NA	X
2-Chloroethylvinyl ether	1	131	60.000	60.000					NA	NA	
2-Hexanone	1	305	2.000	2.000					146	NA	
4-Methyl-2-pentanone	3	308	2.700	7.000					183	NA	X
Acetone	14	340	2.000	120.000					365	NA	X
Benzene	8	311	0.300	4.000					0.062	100[MCL][T]	X
Carbon disulfide	11	305	0.500	109.000					2.8	NA[D]	X
Chlorobenzene	3	311	2.000	10.000					5.2	100[MCL][T]	
Chloroform	2	311	0.300	2.100					0.028	NA	X
Ethylbenzene	1	311	10.000	10.000					158	NA	
Methylene chloride	6	346	0.700	6.000					0.63	NA	X
Styrene	1	305	10.000	10.000					0.28	1000[MCL][F]	
Tetrachloroethene	2	346	1.000	1.000					37	10,000[MCL][F]	X
Toluene	16	346	0.700	32.000					93	5[MCL][F]	
Total Xylenes	3	305	0.500	10.000					7,300	2000 [Lifetime HA, 70 kg adult][F]	
Trichloroethene	3	346	2.000	9.000					0.25	NA	X

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TABLE A.2-5

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 3 MONITORING WELLS

[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.
[17] RBC presented for alpha- and gamma-chlordane is for chlordane.
[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).
[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.
[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[21] Drinking water standard for 1,3-dichloropropene.
[22] As applicable to PCBs in general.
[23] As applicable to total chromium.
[24] Action level for copper is 1,300 μg/L.
[25] Action level for lead is 15 μg/L.
NA Information not available.
ND All concentrations were below corresponding SQLs.
[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).
[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).
[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.
[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[D] Draft
[F] Final
[LR] Listed for regulation
[P] Proposed
[T] Tentative
[*] Currently undergoing review.

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TABLE A.2-6

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 4 MONITORING WELLS

Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 4 Wells: Sample Frequency of Detection [1]		Sample Statistics: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 4 Wells: Background Frequency of Detection		Background Statistics: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Arsenic	34	101	0.001	0.071	7	16	0.0011	0.0294	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	63	100	0.028	0.757	14	16	0.0368	0.7680	0.26	0.005[MCL][F]	
Beryllium	1	100	0.011	0.011					0.0000020	NA	
Cadmium	7	82	0.001	0.045	3	16	0.0022	0.0135	0.0018	NA	
Calcium	101	101	9.100	912.000	16	16	78.0000	162.0000	NA	1.30[MCLG][F][24]	
Chromium	39	156	0.002	1.560	2	16	0.0067	0.0211	0.018	0.200[MCL][P]	
Cobalt	5	100	0.006	0.069	1	15	0.0086	0.0086	0.22	NA	
Copper	9	101	0.010	0.273	2	16	0.0110	0.0350	NA	NA	
Iron	101	101	0.018	375.000	14	15	0.3120	5.5000	NA	0.200[MCLG][LR]	
Lead	25	101	0.001	1.880	1	15	0.0020	0.0020	NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	101	101	15.000	228.000	16	16	20.1000	39.0000	35	0.100 [MCL][F]	
Manganese	101	101	0.004	5.250	16	16	0.0043	0.9040	0.018	NA	
Mercury	2	84	0.000	0.000					0.0011	NA	
Molybdenum	5	59	0.010	0.051					0.018	NA	
Nickel	14	101	0.007	0.898	1	16	0.0514	0.0514	0.073	NA	
Phosphorus					75	102	0.0100	3.0800		0.100 [Lifetime HA, 70 kg adult][D]	
Potassium	68	82	0.483	6.500	13	16	0.6480	1.9600			
Selenium	5	82	0.001	0.003	1	5	0.0008	0.0008	0.018	NA	
Silicon	1	1	4.910	4.910	1	1	5.8100	5.8100		NA	
Silver	4	101	0.002	0.023	1	16	0.0117	0.0117	0.018	NA	
Sodium	101	101	3.760	136.000	16	16	3.0800	50.4000			
Vanadium	5	101	0.004	0.078	2	16	0.0008	0.0117	0.026	2.00 [Lifetime HA, 70 kg adult][F]	
Zinc	39	100	0.008	3.000	2	14	0.0087	0.0210	1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L											
Ammonia	127	157	0.030	6.630	40	101	0.0450	12.6000	NA	NA	
Chloride	227	230	2.630	472.000	98	110	0.0200	120.0000		1 [MCL][F]	
Fluoride	209	216	0.062	1.180	110	113	0.1000	1.9000	0.22	NA	
Nitrate	45	81	0.030	7.200	52	64	0.0140	24.9000	5.8	NA	
Nitrate/Nitrite	17	41	0.020	0.590	4	12	0.0200	4.1000		250 [SMCL][F]	
Nitrite, as Nitrogen	1	9	0.040	0.400					0.37	NA	
Phosphate	5	5	0.150	0.220						NA	
Phosphorus	121	154	0.020	2.540	75	102	0.0100	3.0800			
Sulfate	224	228	2.000	500.000	101	110	2.7900	321.0000			
Sulfide	5	16	9.600	40.000							

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.
[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.
[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background

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TABLE A.2-6

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 4 MONITORING WELLS

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Radionuclide/Chemical	Sample Statistics Great Miami Aquifer - Type 4 Wells: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Statistics Great Miami Aquifer - Type 4 Wells: Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.			
Radionuclides, pCi/L											
Cesium-137	2	28	4.800	20.000	2	70	5.8000	6.7000	0.17	110 [19]	
Neptunium-237	1	96	1.000	1.000	4	81	0.2500	0.6200	0.022	1.23 [19]	
Plutonium-238	1	93	1.000	1.000	6	62	0.0220	0.0890	0.022	1.71 [19]	
Plutonium-239/240	2	93	1.000	1.020	5	59	0.0160	0.0830	0.021	1.55 [19]	
Radium-226	7	156	1.100	2.500	56	105	0.0710	2.0000	0.032	4.17 [19][20]	
Radium-228	4	159	3.100	5.600	23	106	1.0000	52.0000	0.048	6,035 [19]	
Strontium-90 [18]	3	87	1.200	5.000	4	87	0.6500	4.8000	0.13	3,753 [19]	
Technetium-99 [18]	1	122	30.000	30.000	2	99	22.0000	26.0000	3.7	NA	
Total Thorium 1	22	121	0.600	21.888	3	50	0.9700	2.1000		6.78 [19]	
Thorium-228	32	172	0.239	3.000	37	101	0.0750	2.9000	0.087	10 [19]	
Thorium-230	36	174	0.218	3.200	44	98	0.1800	2.5000	0.37	2.01 [19]	
Thorium-232	6	158	0.300	2.400	9	71	0.1000	0.7700	0.4	400 [19]	
Total Uranium 1	140	289	0.127	103.000	69	115	0.1000	3.1000		7 [MCL][P]	
Uranium-234	73	183	0.253	29.700	65	98	0.1400	1.3000	0.30	20.4 [19]	
Uranium-235/236	11	179	0.238	2.420	5	97	0.0940	0.2600	0.32		
Uranium-235	1	5	0.112	0.112					0.30	7 [MCL][P]	
Uranium-236	1	2	0.015	0.015							
Uranium-238	52	184	0.223	31.500	42	104	0.1400	0.9300	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
2-Butanone	2	120	24.000	88.000					2,190	NA	X
Acetone	3	153	3.000	38.900					365	NA	X
Bromodichloromethane	1	122	2.600	2.600					0.14	10 [Lifetime HA, 70 kg adult][F]	
Bromoform	1	122	5.400	5.400					0.38	5[MCL][F]	X
Chlorobenzene	1	122	1.000	1.000					5.2	100[MCL][T]	
Chloromethane	1	119	12.000	12.000					0.23	NA	X
Dibromochloromethane	1	122	6.100	6.100					0.10	5 [MCL][F]	
Methylene chloride	1	153	9.000	9.000					0.63	NA	X
Toluene	6	153	1.000	8.000					93	5[MCL][F]	X
Semivolatile Organic Compounds, ug/L											
Di-n-butylphthalate	1	10	20.000	20.000					365	0.3[MCL][P]	
Bis(2-ethylhexyl)phthalate	3	10	5.000	12.000					0.61	NA	X
Pesticides/PCBs, ug/L											
Dieldrin	1	8	0.006	0.006					0.00053	NA	
Endrin ketone	1	4	0.010	0.010					NA	0.2[MCL][F]	
Inorganics, mg/L											
Aluminum	22	101	0.021	29.700	4	15	0.0600	0.2250		2.00[MCL][F]	
Antimony	3	81	0.066	0.112					0.0015	0.004[MCL][F]	

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TABLE A.2-6

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN GROUNDWATER
GREAT MIAMI AQUIFER - TYPE 4 MONITORING WELLS

concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL. Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".

[8] Background information is for total chromium.

[9] Radionuclide concentrations presented are in units of pCi/L.

[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.

[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.

[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.

[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.

[14] RBC presented for uranium is for the soluble salts of uranium.

[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[17] RBC presented for alpha- and gamma-chlordane is for chlordane.

[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.

[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[21] Drinking water standard for 1,3-dichloropropene.

[22] As applicable to PCBs in general.

[23] As applicable to total chromium.

[24] Action level for copper is 1,300 μg/L.

[25] Action level for lead is 15 μg/L.

NA Information not available.

ND All concentrations were below corresponding SQLs.

[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).

[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).

[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.

[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[D] Draft

[F] Final

[LR] Listed for regulation

[P] Proposed

[T] Tentative

[*] Currently undergoing review.

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TABLE A.2-7

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
GREAT MIAMI RIVER

Radionuclide/Chemical	Sample Statistics Great Miami River: Sample Frequency of Detection [1] Unfiltered Number of Hit/Sample	Sample Frequency of Detection [1] Filtered Number of Hit/Sample	Range of Detected Sample Concentrations [2] Unfiltered Min/Max Detect Conc.	Range of Detected Sample Concentrations [2] Filtered Min/Max Detect Conc.	Background Statistics Great Miami River: Background Frequency of Detection Unfiltered Number Hits/Samples	Background Frequency of Detection Filtered Number Hits/Samples	Range of Detected Background Concentrations Minimum Detected Dect. Conc.	Range of Detected Background Concentrations Maximum Detected Dect. Conc.	U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
Radionuclides, pCi/L											
Radium-226	2/38	3/30	1.6 - 2.4	1.2 - 2.8	1/4		0.12 - 0.41		0.032	4.17 [19][20]	
Radium-228	1/38	4/30	5 - 5	3.2 - 5	1/5		2.2 - 2.2		0.048	6,035 [19]	
Technetium-99 [18]	2/35	17/52	40.1 - 95.9	31.4 - 57.2					3.7	NA	
Total Thorium 1	1/1	1/34	1.824 - 1.824	0.912- 0.912						6.78 [19]	
Thorium-228	4/36	3/53	1.5 - 2.6	1.1 - 2.4					0.087	10 [19]	
Thorium-230	2/36	4/53	0.4 - 1.3	0.3 - 0.7	4/5	2/3	0.26 - 0.36	0.38 - 0.62	0.37	2.01 [19]	
Total Uranium 1	39/42	54/67	1 - 5	0.4 - 7	5/5	3/3	0.74 - 1.4	0.52 - 1.1		7 [MCL][P]	
Uranium-234	15/37	32/63	0.5 - 2.2	0.6 - 2.3	5/5	3/3	0.3 - 1.1	0.44 - 0.5	0.30	20.4 [19]	
Uranium-235/236					1/5		0.25 - 0.25		0.30	7 [MCL][P]	
Uranium-238	11/17	29/63	0.5-2	0.4 - 1.9	3/5	3/3	0.59 - 0.076	0.44 - 0.5	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
Trichloroethene	1/4		2 - 2						0.25	NA	
Di-n-butylphthalate	1/4		3 - 3						365	0.3[MCL][P]	
Di-n-octylphthalate	1/4		2 - 2						73	NA	
Bis(2-ethylhexyl)phthalate	2/4		2 - 160						0.61	NA	
Inorganics, mg/L											
Aluminum	4/6	1/5	0.668 - 19.1	0.856 - 0.856	2/2	2/2	1.3 - 1.89	0.086 - 0.115		2.00[MCL][F]	
Arsenic	5/24	3/19	0.0021 - 0.0062	0.0011 - 0.0024	2/4	2/3	0.0018 - 0.0036	0.0016 - 0.0024	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	24/24	19/19	0.0379 - 0.228	0.0315 - 0.1	3/5	4/4	0.049 - 0.1	0.075 - 0.1	0.26	0.005[MCL][F]	
Beryllium	1/6		0.0077 - 0.0077						0.0000020	NA	
Cadmium	8/24	2/19	0.0017 - 0.0184	0.0027 - 0.0053	2/5		0.006 - 0.0098		0.0018	NA	
Calcium	24/24	19/19	48.6 - 123	19.8 - 82.6	5/6		61.2 - 77	66 - 79.3	NA	1.30[MCLG][F][24]	
Chromium	3/24		0.0037 - 0.0264						0.018	0.200[MCL][P]	
Copper	2/24		0.0119 - 0.0308		1/5		0.0118 - 0.0118		NA	NA	
Cyanide	2/4	1/5	0.00610 - 0.0214	0.0168 - 0.0168	2/2	2/2	0.003 - 0.0052	0.0022 - 0.0041	0.073	0.015[25]	
Iron	23/24	6/19	0.175 - 18.7	0.09 - 0.869	5/6		0.164 - 2.23		NA	0.200[MCLG][LR]	
Lead	7/24	5/19	0.00210 - 0.09	0.0014 - 0.08	1/4		0.01 - 0.01		NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	24/24	19/19	16.4 - 47.5	7.68 - 36.1	5/5	4/4	21.5 - 33.9	27.2 - 34.9	35	0.100 [MCL][F]	
Manganese	24/24	7/19	0.0044 - 0.561	0.002 - 0.083	5/5		0.009 - 0.82		0.018	NA	
Mercury	3/24	2/19	0.0006 - 0.0019	0.00020 -0.001					0.0011	NA	
Molybdenum	7/24	6/19	0.007 - 0.04	0.024 - 0.06	1/5		0.02 - 0.02		0.018	NA	
Nickel	7/24	1/19	0.0072 - 0.0259	0.0113 - 0.0113	2/5		0.11 - 0.023		0.073	NA	
Potassium	24/24	19/19	2.17 - 8	2.09 - 7.95	5/5	4/4	2.3 - 6.08	3.4 - 6.2			
Silicon	6/6	5/5	2.26 - 51.7	2.02 - 3.33	2/2	2/2	4.47 - 5.9	2.5 - 3.04		NA	
Silver		1/19		0.13 - 0.13					0.018	NA	
Sodium	23/23	18/18	12.2 - 84.9	12.7 - 80.1	5/5	4/4	12.9 - 75.8	27.1 - 77.2			
Zinc	1/5		0.112 - 0.112		1/2		0.0446 - 0.0446		1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L											
Ammonia	17/23		0.0322 - 1.9		2/4		0.1 - 0.11		NA	NA	
Chloride	23/23		10 - 252		5/5		18 - 325			1 [MCL][F]	
Fluoride	23/23		0.25 - 0.9		5/5		0.27 - 0.9		0.22	NA	

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TABLE A.2-7

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
GREAT MIAMI RIVER

CC0102

Radionuclide/Chemical	Sample Statistics Great Miami River: Sample Frequency of Detection [1]		Sample Statistics Great Miami River: Range of Detected Sample Concentrations [2]		Background Statistics Great Miami River: Background Frequency of Detection		Background Statistics Great Miami River: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Unfiltered Number of Hit/Sample	Filtered Number of Hit/Sample	Unfiltered Min/Max Detect Conc.	Filtered Min/Max Detect Conc.	Unfiltered Number Hits/Samples	Filtered Number Hits/Samples	Minimum Detected Dect. Conc.	Maximum Detected Dect. Conc.			
Nitrate	18/19		0.4 - 8.27		5/5		0.4 - 6.58		5.8	NA	
Nitrate/Nitrite	3/3		3.5 - 6.3							250 [SMCL][F]	
Phenols	8/17		0.01 - 0.03		1/4		0.01 - 0.01			NA	
Phosphate	4/4		0.1 - 0.155							NA	
Phosphorus	19/19		0.05 - 4.9		5/5		0.12 - 1.1				
Sulfate	23/23		61 - 191.9		4/4		45.6 - 138				

NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL. Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".

[8] Background information is for total chromium.

[9] Radionuclide concentrations presented are in units of pCi/L.

[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.

[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.

[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.

[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.

[14] RBC presented for uranium is for the soluble salts of uranium.

[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[17] RBC presented for alpha- and gamma-chlordane is for chlordane.

[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.

[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. FPA, Office of Water. May 1993.

[21] Drinking water standard for 1,3-dichloropropene.

[22] As applicable to PCBs in general.

[23] As applicable to total chromium.

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TABLE A.2-7

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
GREAT MIAMI RIVER

[24] Action level for copper is 1,300 µg/L.
[25] Action level for lead is 15 µg/L.
NA Information not available.
ND All concentrations were below corresponding SQLs.
[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).
[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).
[U] Distribution undefined (U.S. DOE, May 1993) An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.
[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[D] Draft
[F] Final
[LR] Listed for regulation
[P] Proposed
[T] Tentative
[*] Currently undergoing review.

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TABLE A.2-8

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PADDYS RUN

000104

Radionuclide/Chemical	Sample Statistics Paddys Run: Sample Frequency of Detection [1] Unfiltered Number of Hit/Sample	Sample Frequency of Detection [1] Filtered Number of Hit/Sample	Range of Detected Sample Concentrations [2] Unfiltered Min/Max Detect. Conc.	Range of Detected Sample Concentrations [2] Filtered Min/Max Detect. Conc.	Background Statistics Paddys Run: Background Frequency of Detection Unfiltered Number of Hit/Sample	Background Frequency of Detection Filtered Number of Hit/Sample	Range of Detected Background Concentrations Unfiltered Min/Max Detect. Conc.	Range of Detected Background Concentrations Filtered Min/Max Detect. Conc.	U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained COC?
Radionuclides, pCi/L											
Cesium-137					1/1	1/1	3.1 - 3.1	3.9 - 3.9	0.17	110 [19]	
Neptunium-237						1/1		0.42-0.42	0.022	1.23 [19]	
Plutonium-239/240					1/1	1/1	0.093 - 0.093	0.29 - 0.29	0.021	1.55 [19]	
Radium-226		3/29		1.4 - 2	1/2		0.35 - 0.35		0.032	4.17 [19][20]	
Radium-228		2/28		3.2 - 3.7	1/2		2.1 - 2.1		0.048	6,035 [19]	
Strontium-90 [18]	1/25		24 - 24		1/1	1/1	0.96 - 0.96	0.86 - 0.86	0.13	3,753 [19]	
Technetium-99 [18]		2/21		59.9 - 62.5					3.7	NA	
Total Thorium [26]	3/24	4/22	0.91201 - 3.648	0.912 - 3.64803						6.78 [19]	
Thorium-228	9/31	7/29	1.78 - 4.82	1 - 5.48					0.087	10 [19]	
Thorium-230	7/31	6/29	0.3 - 6.74	0.4 - 1.98		1/2		0.28 - 0.28	0.37	2.01 [19]	
Thorium-232	1/31	1/29	0.4 - 0.4	0.4 - 0.4					0.4	400 [19]	
Total Uranium [26]	34/35	40/40	1.7 - 26.1	1.6 - 34.2	2/2	2/2	0.9 - 1.1	0.81 - 1.1		7 [MCL][P]	
Uranium-234	29/30	25/27	1.3 - 10.9	1 - 9.7	1/1	2/2	0.7 - 0.7	0.45 - 0.7	0.30	20.4 [19]	
Uranium-235/236	1/30	3/27	0.4 - 0.4	0.4 - 1.98					0.30	7 [MCL][P]	
Uranium-238	29/30	24/25	2 - 14.1	1 - 9.2	2/2	2/2	0.6 - 0.73	0.48 - 0.5	0.17	70 [F]	
Volatile Organic Compounds, ug/L											
Trichloroethene	2/10		2 -2						0.25	NA	X
Semi-volatile Organic Compound, ug/L											
Di-n-octylphthalate	2/8		52 - 89						73	NA	X
Diethyl phthalate	1/8		2 - 2						2,920	200 [Lifetime HA, 70 kg adult][F]	
N-Nitrosodiethylamine	1/8		4 - 4						0.000057	NA	
Bis(2-ethylhexyl)phthalate	3/8		11 - 40						0.61	NA	X
Inorganics, mg/L											
Aluminum	11/16	9/22	0.0639 - 2.95	0.0271 - 0.114	2/2	1/2	0.195 - 0.64	0.132 - 0.132		2.00[MCL][F]	
Antimony	1/2	1/10	0.0025 - 0.0025	0.0146 - 0.0146					0.0015	0.004[MCL][F]	
Arsenic	3/16	4/23	0.002 - 0.0037	0.0022 - 0.0188					0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	12/16	22/23	0.0378 - 0.0658	0.0288 - 0.0493	2/2	2/2	0.034 - 0.0534	0.0304 - 0.0526	0.26	0.005[MCL][F]	
Beryllium	2/12		0.0011 - 0.0012						0.0000020	NA	
Cadmium	8/16	11/23	0.0027 - 0.005	0.003 -0.004					0.0018	NA	
Calcium	15/15	23/23	52.3 - 102	45.2 - 110	2/2	2/2	86.6 - 107	85.3 - 107	NA	1.30[MCLG][F][24]	
Chromium	7/16	11/23	0.0139 - 0.018	0.017 - 0.053					0.018	0.200[MCL][P]	
Copper	7/16	3/23	0.0038 - 0.0147	0.0106 - 0.0121					NA	NA	
Cyanide	1/12		0.0053 - 0.0053						0.073	0.015[25]	
Iron	8/16	18/23	0.107 - 2.84	0.0064 - 0.464	2/2		0.129 - 0.513		NA	0.200[MCLG][LR]	
Lead	3/15	7/22	0.0044 - 0.156	0.0021 - 0.0107					NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	15/15	22/23	12.7 - 28.2	9.97 -27.6	2/2	2/2	20.7 - 27.8	20.4 - 27.7	35	0.100 [MCL][F]	
Manganese	16/16	22/23	0.0075 - 0.0545	0.00480 - 0.0921	1/1	1/1	0.035 - 0.035	0.0257 - 0.0257	0.018	NA	
Mercury		3/23		0.0002 - 0.0003					0.0011	NA	
Molybdenum	1/16		0.0205 - 0.0205						0.018	NA	
Nickel	2/16	1/23	0.0128 - 0.0141	0.025 - 0.025					0.073	NA	
Potassium	16/16	21/23	2.13 - 3.95	1.32 - 5.01	2/2	2/2	2.12 - 3.58	1.96 - 3.5		0.002 [MCL][F]	
Rubidium										0.002 [MCL][F]	
Selenium		1/20		0.0169 - 0.0169					0.018	NA	
Silicon	9/9	18/18	2.29 - 4.27	1.73 - 5.91	2/2	2/2	2.95 - 3.36	2.43 - 3.01		NA	

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TABLE A.2-8

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PADDYS RUN

Radionuclide/Chemical	Sample Statistics Paddys Run: Sample Frequency of Detection [1]		Sample Statistics Paddys Run: Range of Detected Sample Concentrations [2]		Background Statistics Paddys Run: Background Frequency of Detection		Background Statistics Paddys Run: Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Unfiltered Number of Hit/Sample	Filtered Number of Hit/Sample	Unfiltered Min/Max Detect. Conc.	Filtered Min/Max Detect. Conc.	Unfiltered Number of Hit/Sample	Filtered Number of Hit/Sample	Unfiltered Min/Max Detect. Conc.	Filtered Min/Max Detect. Conc.			
Silver	4/13	11/20	0.018 - 0.019	0.004 - 0.0228					0.018	NA	
Sodium	15/15	23/23	8.39 - 86	5.55 - 20	2/2	2/2	13 - 18.2	12.9 - 18.3	0.00026	0.020 [MCL][F]	
Thallium		1/10		0.0014 - 0.0014					0.00026	0.020 [MCL][F]	
Vanadium	3/16	5/22	0.0127 - 0.0177	0.01 - 0.0145					0.026	2.00 [Lifetime HA, 70 kg adult][F]	
Zinc	5/12	2/10	0.00510 - 0.0368	0.0036 - 0.0038					1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L											
Ammonia	11/30		0.00008 - 0.452		1/2		0.0387 -0.0387		NA	NA	
Chloride	30/30		0.021 - 38.9		2/2		27.8 - 31.6			1 [MCL][F]	
Fluoride	30/30		0.00023 - 0.3		2/2		0.022 - 0.22		0.22	NA	
Nitrate	20/20		0.863 - 12.1		1/2		1.66 - 1.66		5.8	NA	
Nitrate/Nitrite	8/9		1.6 - 7.57							250 [SMCL][F]	
Nitrite, as Nitrogen	1/1		1.5 - 1.5						0.37	NA	
Phenols	5/30		0.01 - 0.02							NA	
Phosphate	5/5		0.159 - 0.459							NA	
Phosphorus	23/25		0.00006 - 0.541		1/1		0.228 - 0.228				
Sulfate	26/26		28.57 - 88.9		2/2		46.8 - 55.7				

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL. Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".

[8] Background information is for total chromium.

[9] Radionuclide concentrations presented are in units of pCi/L.

[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.

[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.

[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.

[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.

[14] RBC presented for uranium is for the soluble salts of uranium.

[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[17] RBC presented for alpha- and gamma-chlordane is for chlordane.

[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DCFos) from Federal Guidance

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TABLE A.2-8

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PADDYS RUN

Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.

[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[21] Drinking water standard for 1,3-dichloropropene.

[22] As applicable to PCBs in general.

[23] As applicable to total chromium.

[24] Action level for copper is 1,300 µg/L.

[25] Action level for lead is 15 µg/L.

[26] Total Thorium and total Uranium concentrations are expressed in ug/L

NA Information not available.

ND All concentrations were below corresponding SQLs.

[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).

[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).

[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.

[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.

[D] Draft

[F] Final

[LR] Listed for regulation

[P] Proposed

[T] Tentative

[*] Currently undergoing review.

TABLE A.2-9

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PRODUCTION AREA

Radionuclide/Chemical	Sample Statistics Production Area: Sample Frequency of Detection [1] Filtered # of Hits/ Samples	Sample Frequency of Detection [1] Unfiltered # of Hits/ Samples	Range of Detected Sample Concentrations [2] Filtered Min/Max Conc.	Range of Detected Sample Concentrations [2] Unfiltered Min/Max Conc.	U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
Radionuclides, pCi/L							
Neptunium-237	1/9		0.75-0.75		0.022	1.23 [19]	
Plutonium-239/240		1/11		0.81 - 0.81	0.021	1.55 [19]	
Radium-226		1/22		2.4 - 2.4	0.032	4.17 [19][20]	
Radium-226 + 8D					0.0059	3.83 [19][20]	
Radium-228	1/16		4.1 - 4.1		0.048	6,035 [19]	
Technetium-99 [18]	2/9	1/11	41.3 - 88.5	83.8 - 83.8	3.7	NA	
Total Thorium 1	3/6	2/10	0.87 - 1.824	1.08 - 1.82406		6.78 [19]	
Thorium-228		2/16		0.3 - 1	0.087	10 [19]	
Thorium-230	3/11	2/16	0.3-0.5	.04 - 2.51	0.37	2.01 [19]	
Total Uranium 1	30/30	43/43	4.7 - 2360	7.1 - 2890		7 [MCL][P]	
Uranium-234	12/12	19/19	3.1 - 1170	3.2 - 1040	0.30	20.4 [19]	
Uranium-235/236	9/12	16/19	1.11 - 38.4	0.4 - 41.8	0.30	7 [MCL][P]	
Uranium-238	12/12	19/19	3.1 - 1210	4.3 - 1050	0.17	70 [F]	
Volatile Organic Compounds, ug/L							
1,1,1-Trichloroethane		1/11		4 - 4	151	5 [MCL][F]	
1,1-Dichloroethane		1/11		10 - 10	97	40 [Lifetime HA, 70 kg adult][F]	
1,2-Dichloroethene (Total)		1/11		67 - 67	37	NA	X
2-Hexanone		1/11		19 - 19	146	NA	
4-Methyl-2-pentanone		1/11		16 - 16	183	NA	
Tetrachloroethene		4/11		1 - 240	37	10,000[MCL][F]	X
Trichloroethene		3.11		2-18	0.25	NA	X
Semivolatile Organic Compounds, ug/L							
Di-n-butylphthalate		2/12		2 - 3	365	0.3[MCL][P]	
Diethyl phthalate		1/12		3 - 3	2,920	200 [Lifetime HA, 70 kg adult][F]	
Bis(2-ethylhexyl)phthalate		2/12		1 - 2	0.61	NA	
Inorganics, mg/L							
Aluminum	4/7	13/15	0.133 - 0.201	0.14 - 14.4		2.00[MCL][F]	
Arsenic	1/7	2/15	0.0026	0.0032 - 0.0034	0.0000049	0.600 [Lifetime HA, 70 kg adult][D]	
Barium	7/7	15/15	0.0405 - 0.0711	0.0385 - 0.223	0.26	0.005[MCL][F]	

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TABLE A.2-9

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PRODUCTION AREA

Radionuclide/Chemical	Sample Statistics Production Area: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		U.S. EPA RAGS, Part B Groundwater Screening Level Residential Scenario [6]	U.S. EPA Drinking Water Standards And Health Advisories [8]	Retained as COC?
	Filtered # of Hits/ Samples	Unfiltered # of Hits/ Samples	Filtered Min/Max Conc.	Unfiltered Min/Max Conc.			
Beryllium	1/7	1/15	0.0062	0.0015 - 0.0015	0.0000020	NA	
Calcium	7/7	15/15	95.1 - 132	47 - 198	NA	1.30[MCLG][F][24]	
Chromium		2/15		0.0114 - 0.0175	0.018	0.200[MCL][P]	
Cobalt		1/15		0.0136 - 0.0136	0.22	NA	
Copper		2/15		0.0156 - 0.0202	NA	NA	
Cyanide	2/4	5/18	0.0024 - 0.0024	0.0024 - 0.0319	0.073	0.015[25]	
Iron	3/7	9/15	0.0402-0.102	0.0866 - 17.7	NA	0.200[MCLG][LR]	
Lead		2/15		0.00910 - 0.0158	NA	0.010 [longer term HA, 10 kg child][F]	
Magnesium	7/7	15/15	25.7 - 37.7	10.7 - 65.7	35	0.100 [MCL][F]	
Manganese	7/7	15/15	0.0089 - 0.483	0.0147 - 0.825	0.018	NA	
Mercury		1/15		0.0006 - 0.0006	0.0011	NA	
Molybdenum		1/15		0.023 - 0.023	0.018	NA	
Nickel		3/15		0.0104-0.027	0.073	NA	
Potassium	7/7	15/15	0.869 - 9.55	.865 - 9.15			
Selenium	1/7		0.0046 - 0.0046		0.018	NA	
Silicon	7/7	13/13	2.03 - 6.72	1.91 - 30.2		NA	
Sodium	7/7	15/15	13 - 46	4.96 - 46.4	0.018	NA	
Zinc	2/7	10/15	0.0134 - 0.0384	0.0054 - 0.51	1.1	4 [MCL][F]	
Miscellaneous Parameters, mg/L							
Ammonia		4/12		0.0682 - 0.446	NA	NA	
Chloride		12/12		7 - 97.94		1 [MCL][F]	
Fluoride		12/12		0.14 - 0.56	0.22	NA	
Nitrate		6/9		0.74 - 2.67	5.8	NA	
Nitrate/Nitrite		2/3		2.61 - 5.66		250 [SMCL][F]	
Phosphate		1/1		0.292 - 0.292		NA	
Sulfate		11/12		31.8 - 129			
Sulfide		1/10		1.01 - 1.01			

TABLE A.2-9

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PRODUCTION AREA

NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.
[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.
[3] Background and UTL data acquired from report entitled: "Characterization of Background Water Quality for Streams and Groundwater" (U.S. DOE, May 1993). No mean background concentrations were provided for radionuclides. UTLs for radionuclides were set equal to the greater of either the maximum detected value or maximum SQL.Background concentrations presented for radionuclides represent ranges of minimum to maximum detected concentrations. Mean background concentrations are presented for inorganics.
[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.
[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.
[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may have incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.
[7] Acquired from Fernald Risk Assessment Policy No. 94-10, "Calculating Background Risks".
[8] Background information is for total chromium.
[9] Radionuclide concentrations presented are in units of pCi/L.
[10] "+D" Indicates that risks from exposures to decay chain products were incorporated into the PRG/RBC.
[11] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/L.
[12] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/L.
[13] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/L.
[14] RBC presented for uranium is for the soluble salts of uranium.
[15] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.
[16] RBC presented for endosulfan I and endosulfan II is for endosulfan.
[17] RBC presented for alpha- and gamma-chlordane is for chlordane.
[18] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).
[19] Concentration corresponds to an average annual dose limit of 4 mrems/yr for beta and gamma emitters. May also be applicable to alpha emitters. Derived using Oral Dose Conversion Factors (DC Report No. 11 (U.S. EPA 1988) assuming an annual water intake of 730 L/yr.
[20] Maximum Contaminant Levels (MCL) for radium 226 and radium 228 (no daughters) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[21] Drinking water standard for 1,3-dichloropropene.
[22] As applicable to PCBs in general.
[23] As applicable to total chromium.
[24] Action level for copper is 1,300 ug/L.
[25] Action level for lead is 15 ug/L.
NA Information not available.
ND All concentrations were below corresponding SQLs.

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TABLE A.2-9

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SURFACE WATER
PRODUCTION AREA

[N] Indicates arithmetic mean concentration or 95% UTL for a normally distributed data set (U.S. DOE, May 1993).
[L] Indicates geometric mean concentration or 95% UTL for a lognormally distributed data set (U.S. DOE, May 1993).
[U] Distribution undefined (U.S. DOE, May 1993). An arithmetic mean concentration and a 95% UTL for a normal distribution are presented, if determined.
[MCL] Maximum Contaminant Level (MCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[SMCL] Secondary Maximum Contaminant Level (SMCL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[MCLG] Maximum Contaminant Level Goal (MCLG) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[HA] Health Advisory (HA) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[DWEL] Drinking Water Equivalent Level (DWEL) obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. May 1993.
[D] Draft
[F] Final
[LR] Listed for regulation
[P] Proposed
[T] Tentative
[*] Currently undergoing review.

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TABLE A.2-10

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
GREAT MIAMI RIVER

Radionuclide/Chemical	Sample Statistic Sediments: Sample Frequency of Detection [1]		Sample Statistic Sediments: Range of Detected Sample Concentrations [2]		Background Statistics Sediments: Background Frequency of Detection [2]		Background Statistics Sediments: Range of Detected Background Concentrations [2]		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Radionuclides, pCi/g										
Radium-226	24	24	0.385	0.912	3	3	0.4	0.57	0.00069	
Strontium-90 [17]	1	18	0.800	0.800	0	3	ND	ND	2.2	
Total Thorium 1	12	12	1.824	7.296	1	1	3	3	NA	
Thorium-228	6	30	0.300	0.800	0	4	ND	ND	0.00074	
Thorium-230	22	30	0.300	2.300	2	4	0.7	0.72	5.7	
Thorium-232	6	30	0.200	0.800	1	3	0.8	0.88	6.4	
Uranium, Total	28	31	1.000	11.000	2	3	1.3	3	NA	
Uranium-234	13	29	0.200	1.400	2	4	0.6	0.88	4.8	
Uranium-238	13	29	0.200	1.100	1	4	1	1	0.11	
Volatile Organic Compounds, ug/Kg										
Acetone	1	5	37.000	37.000					2,737,500	
Carbon disulfide	1	5	2.000	2.000					2,737,500	
Chlorobenzene	1	4	2.000	2.000					547,500	
Ethylbenzene	1	4	5.000	5.000					2,737,500	
Toluene	2	4	2.000	110.000					5,475,000	
Semivolatile Organic Compounds, ug/Kg										
4-Methylphenol	1	5	200.000	200.000					1,368,750	
Acenaphthylene	1	5	120.000	120.000					NA	
Anthracene	1	5	470.000	470.000					8,212,500	
Benzo(a)anthracene	5	5	51.000	2600.000					58	X
Benzo(a)pyrene	3	5	77.000	2100.000					8.8	X
Benzo(b)fluoranthene	5	5	74.000	2700.000					71	X
Benzo(g,h,i)perylene	1	5	1300.000	1300.000					NA	
Benzo(k)fluoranthene	5	5	81.000	2100.000					168	X
Benzoic Acid	3	5	65.000	210.000					109,500,000	
Chrysene	5	5	70.000	2700.000					1,996	
Di-n-butylphthalate	1	5	81.000	81.000					2,737,500	X
Dibenzo(a,h)anthracene	1	5	580.000	580.000					7.9	
Dibenzofuran	1	5	63.000	63.000					NA	
Fluoranthene	5	5	150.000	5500.000					1,095,000	X

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TABLE A.2-10

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
GREAT MIAMI RIVER

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Radionuclide/Chemical	Sample Statistic Sediments: Sample Frequency of Detection [1]		Sample Statistic Sediments: Range of Detected Sample Concentrations [2]		Background Statistics Sediments: Background Frequency of Detection [2]		Background Statistics Sediments: Range of Detected Background Concentrations [2]		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Fluorene	1	5	130.000	130.000					1,095,000	
Indeno(1,2,3-cd)pyrene	2	5	58.000	1600.000					32	X
Phenanthrene	5	5	78.000	2200.000					NA	
Pyrene	5	5	130.000	4400.000					821,250	X
Inorganics, mg/Kg										
Aluminum	5	5	4590.000	11600.000					NA	
Arsenic	5	5	1.700	11.700					0.037	
Barium	5	5	57.800	130.000					1,916	
Beryllium	3	5	1.400	3.000					0.015	
Calcium	5	5	44700.000	120000.000					NA	
Chromium	5	5	9.200	15.900					137	
Cobalt	5	5	4.700	12.700					1,643	
Copper	5	5	13.500	36.900					NA	
Cyanide	1	4	0.390	0.390					548	
Iron	5	5	10500.000	21000.000						
Lead	5	5	16.000	78.400					NA	
Magnesium	5	5	12300.000	21500.000					265,538	
Manganese	5	5	402.000	1400.000					137	
Nickel	5	5	12.900	19.800					548	
Potassium	5	5	698.000	1410.000						
Selenium	1	1	0.75	0.75					137	
Silicon	5	5	135.00	1140.00						
Sodium	1	5	91.10	91.10						
Vanadium	5	5	11.10	24.30					192	
Zinc	5	5	61.00	171.00					8,213	

NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Mean background concentration and upper tolerance limit values (UTLs) are for the 0" - 6" depth interval. Mean background concentrations and UTLs presented for radionuclides are for

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TABLE A.2-10

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
GREAT MIAMI RIVER

parent isotopes only and do not represent values for daughter products. Refer to Tables 1 and 2 of interoffice correspondence from Dennis Carr (4/2/93) regarding background soil values to be adopted in FEMP CERCLA/RCRA activities.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Presented as the number of detected concentrations of a contaminant exceeding the corresponding RBC over the total number of detected concentrations of that contaminant.

[8] Radionuclide concentrations presented are in units of pCi/g.

[9] "+D" Indicates that risks from exposures to decay chain products were incorporated into the Fermco PRG.

[10] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/kg.

[11] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/g (ug/kg).

[12] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/kg.

[13] RBC presented for uranium is for the soluble salts of uranium.

[14] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[15] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[16] RBC presented for alpha- and gamma-chlordane is for chlordane.

[17] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

TABLE A.2-11

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS PADDY'S RUN

	Sample Statistics Sediments				Background Statistics Sediments					
	Sample Frequency of Detection (1)		Range of Detected Sample Concentrations (2)		Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario	Retained as COC?
	Number Positive	Total Number	Minimum Detected	Maximum Detected	Number Positive	Total Number	Minimum Detected	Maximum Detected		
Radionuclides, pCi/g										
Cesium-137	1	12	0.258	0.258					0.0021	
Neptunium-237	4	11	0.285	0.625					0.0094	
Plutonium-238	1	12	1.890	1.890					0.36	
Plutonium-239/240	1	12	0.374	0.374					0.34	
Radium-226	40	42	0.001	3.530	3	3	0.4	0.5	0.00069	
Radium-228	20	42	0.001	2.900	0	3	ND	ND	0.0014	
Strontium-90 (17)	5	12	0.546	1.010					2.2	
Total Thorium 1	20	20	1.840	23.400					NA	
Thorium-228	20	24	0.300	2.800					0.00074	
Thorium-230	24	24	0.500	8.900					5.7	
Thorium-232	21	24	0.200	2.570					6.4	
Uranium, Total	57	59	1.000	51.800	3	3	1	3	NA	
Uranium-234	25	25	0.004	7.950					4.8	
Uranium 235/238	9	25	0.100	0.900					NA	
Uranium-238	25	25	0.007	10.800					0.11	
Volatile Organic Compounds, ug/Kg										
1,1-Dichloroethane	1	26	3.000	3.000					NA	
2-Hexanone	1	26	11.000	11.000					1,095,000	
Acetone	3	26	2.000	180.000					2,737,500	
Ethylbenzene	1	26	1.000	1.000					2,737,500	
Methylene chloride	5	26	2.000	7.000					8,517	
Toluene	6	26	2.000	35.000					5,475,000	
Semivolatile Organic Compounds, ug/Kg										
2-Methylnaphthalene	1	24	58.000	58.000					NA	
4-Methylphenol	2	24	310.000	310.000					1,368,750	
Acenaphthene	1	24	98.000	98.000					1,642,500	
Anthracene	1	24	240.000	240.000					8,212,500	
Benzo(a)anthracene	8	24	49.000	500.000					58	
Benzo(a)pyrene	6	23	54.000	550.000					8.8	
Benzo(b)fluoranthene	9	23	59.000	730.000					71	
Benzo(g,h,i)perylene	4	23	100.000	240.000					NA	
Benzo(k)fluoranthene	10	23	54.000	300.000					168	
Benzoic Acid	4	16	45.000	200.000					109,500,000	
Carbazole	1	14	120.000	120.000					3,194	
Chrysene	10	24	50.000	510.000					1,996	
Di-n-butylphthalate	3	24	53.000	80.000					2,737,500	
Fluoranthene	13	24	50.000	1400.000					1,095,000	
Indeno(1,2,3-cd)pyrene	4	23	99.000	310.000					32	
Naphthalene	1	24	51.000	51.000					1,095,000	
Phenol	9	24	62.000	1000.000					16,425,000	
Pyrene	13	24	58.000	990.000					821,250	
Bis(2-ethylhexyl)phthalate	7	24	53.000	2200.000					4,563	
Pesticides/PCBs, ug/Kg										
Aroclor 1254	1	13	96.000	96.000					8.3	
Inorganics, mg/Kg										
Aluminim	24	24	888.000	20500.000	1	1	1970	1970	NA	
Arsenic	24	24	2.000	75.600	1	1	7	7	0.037	
Barium	24	24	14.000	212.000	1	1	21	21	1,916	
Beryllium	15	24	0.500	4.600	1	1	0.5	0.5	0.015	
Cadmium	24	24	5340.000	294000.000	1	1	3.7	3.7	14	
Chromium	23	24	2.500	27.800	1	1	18.3	18.3	137	

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TABLE A.2-11

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS PADDY'S RUN

	Sample Statistics Sediments				Background Statistics Sediments					
	Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		Background Frequency of Detection		Range of Detected Background Concentrations		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario	Retained as COC?
	Number Positive	Total Number	Minimum Detected	Maximum Detected	Number Positive	Total Number	Minimum Detected	Maximum Detected		
Cobalt	17	24	3.700	19.400	1	1	4.9	4.9	1,643	
Copper	23	24	3.300	122.000	1	1	10.8	10.8	NA	
Cyanide	4	26	0.180	0.540					548	
Iron	24	24	5350.000	33000.000	1	1	6700	6700		
Lead	22	23	4.300	91.500					NA	
Magnesium	24	24	1180.000	72500.000	1	1	18300	18300	265,538	
Manganese	24	24	32.500	1640.000	1	1	411	411	137	
Mercury	2	24	0.070	0.190					8.2	
Molybdenum	3	26	6.300	6.600					137	
Nickel	21	24	5.000	36.400	1	1	13.7	13.7	548	
Potassium	22	25	214.000	2600.000	1	1	307	307		
Selenium	3	11	0.860	9.600					137	
Silicon	20	20	164.000	1670.000						
Silver	5	18	0.250	6.800					137	
Sodium	18	24	67.100	357.000	1	1	197	197		
Thallium	3	25	0.760	4.400					1.9	
Vanadium	24	24	6.100	53.600	1	1	12.4	12.4	192	
Zinc	21	22	13.400	118.000	1	1	13.5	13.5	8,213	
Miscellaneous Parameters, mg/Kg										
Ammonia	2	2	50.400	93.600					NA	
Fluoride	2	2	5.690	7.580					1,643	
Nitrate	2	2	2.620	2.760					43,800	
Phosphorus	2	2	37.400	38.900						
Sulfate	2	2	418.000	697.000						

NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Mean background concentration and upper tolerance limit values (UTLs) are for the 0" - 6" depth interval. Mean background concentrations and UTLs presented for radionuclides are for parent isotopes only and do not represent values for daughter products. Refer to Tables 1 and 2 of Interoffice correspondence from Dennis Carr (4/2/93) regarding background soil values to be adopted in FEMP CERCLA/RCRA activities.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 0.2 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the frequency of detection, are used as primary criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criterion in the selection of chemical contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations of that contaminant.

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient of 1 for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, are used as primary criteria in the selection of chemical contaminants of concern for soils. It should be noted that Region III may incorporated some reference doses and/or slope factors into the derivation of the RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs for the radionuclides from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Presented as the number of detected concentrations of a contaminant exceeding the corresponding RBC over the total number of detected concentrations of that contaminant.

[8] Radionuclide concentrations presented are in units of pCi/g.

[9] "+D" indicates that risks from exposures to decay chain products were incorporated into the Fermco PRG.

[10] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/kg.

[11] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/g (ug/kg).

[12] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/kg.

[13] RBC presented for uranium is for the soluble salts of uranium.

[14] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[15] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[16] RBC presented for alpha- and gamma-chlordane is for chlordane.

[17] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The presence of this radionuclide is due only to atmospheric releases of radiation (e.g., weapons testing).

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TABLE A.2-12

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
PRODUCTION AREA

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Radionuclide/Chemical	Sample Statistics Sediments: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Radionuclides, pCi/g						
Cesium-137	1	1	0.46	0.46	0.0021	
Plutonium-238	1	1	4.85	4.85	0.359877929	
Radium-226	12	12	0.70	10.60	0.00069	
Radium-228	10	12	0.60	21.70	0.0014	
Strontium-90 [17]	1	1	3.24	3.24	2.2	
Technetium-99 [17]	1	1	1.83	1.83	61	
Total Thorium 1	5	6	5.47	51.00	NA	
Thorium-228	5	5	0.60	9.90	0.00074	
Thorium-230	5	5	2.90	8.50	5.7	
Thorium-232	5	5	0.60	9.55	6.4	
Total Uranium 1	17	17	3.60	486.00	NA	
Uranium-234	5	5	4.10	116.00	4.8	
Uranium 235/236	5	5	0.20	8.50	NA	
Uranium-238	5	5	4.60	158.00	0.11	
Volatile Organic Compounds, ug/Kg						
Ethylbenzene	1	5	3.00	3.00	2,737,500	
Methylene chloride	1	5	2.00	2.00	8,517	X
Total Xylenes	1	5	4.00	4.00	54,750,000	
Semivolatile Organic Compounds, ug/Kg						
Anthracene	1	5	130.00	130.00	8,212,500	
Benzo(a)anthracene	4	5	68.00	660.00	58	X

TABLE A.2-12

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
PRODUCTION AREA

Radionuclide/Chemical	Sample Statistics Sediments: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Benzo(a)pyrene	3	5	61.00	1400.00	8.8	X
Benzo(b)fluoranthene	4	5	110.00	1800.00	71	X
Benzo(g,h,i)perylene	2	5	480.00	2600.00	NA	
Benzo(k)fluoranthene	4	5	66.00	1200.00	168	X
Chrysene	5	5	62.00	1100.00	1,996	X
Di-n-butylphthalate	2	5	78.00	550.00	2,737,500	
Dibenzo(a,h)anthracene	1	5	280.00	280.00	7.9	X
Fluoranthene	5	5	150.00	1300.00	1,095,000	
Indeno(1,2,3-cd)pyrene	2	5	460.00	2300.00	32	X
Phenanthrene	5	5	62.00	380.00	NA	
Pyrene	5	5	110.00	1300.00	821,250	X
Bis(2-ethylhexyl)phthalate	2	5	63.00	560.00	4,563	X
Pesticides/PCBs, ug/Kg						
Aroclor 1254	1	1	1800.00	1800.00	8.3	X
Inorganics, mg/Kg						
Aluminum	5	6	2490.00	10200.00	NA	
Arsenic	5	6	3.50	9.10	0.037	
Barium	6	6	0.03	134.00	1,916	
Beryllium	2	6	1.40	1.50	0.015	
Calcium	6	6	43.90	146000.00	NA	
Chromium	5	6	14.70	27.80	137	
Cobalt	5	6	2.40	11.80	1,643	

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TABLE A.2-12

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
PRODUCTION AREA

000118

Radionuclide/Chemical	Sample Statistics Sediments: Sample Frequency of Detection [1]		Range of Detected Sample Concentrations [2]		U.S. EPA RAGS, Part B Soil Screening Level Residential Scenario [6]	Retained as COC?
	Number Positive Hits	Total Number Samples	Minimum Detected Conc.	Maximum Detected Conc.		
Copper	5	6	21.00	61.60	NA	
Iron	5	6	17300.00	19200.00		
Lead	6	6	0.0040	95.70	NA	
Magnesium	6	6	6.05	30100.00	265,538	
Manganese	6	6	0.01	791.00	137	
Molybdenum	1	6	5.00	5.00	137	
Nickel	5	6	12.60	23.50	548	
Potassium	6	6	3.25	2220.00		
Silicon	6	6	3.86	2830.00		
Silver	1	5	5.60	5.60	137	
Sodium	6	6	30.70	382.00		
Vanadium	5	6	12.60	32.90	192	
Zinc	5	6	83.30	231.00	8,213	
Miscellaneous Parameters, mg/Kg						
Chloride	4	4	0.37	4.10		

TABLE A.2-12

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN IN SEDIMENTS
PRODUCTION AREA

NOTES:

[1] Overall frequency of detection is presented as the number of detected concentrations over the total number of analyses.

[2] Ranges and means of detected concentrations presented are inclusive of all depth intervals.

[3] Mean background concentration and upper tolerance limit values (UTLs) are for the 0" - 6" depth interval. Mean background concentrations and UTLs pr parent isotopes only and do not represent values for daughter products. Refer to Tables 1 and 2 of interoffice correspondence from Dennis Carr (4/2/93) r values to be adopted in FEMP CERCLA/RCRA activities.

[4] Fermco soil PRGs (preliminary remediation goals as derived by Brown & Root Environmental) correspond to a 1E-06 risk level for individual carcinogens for individual noncarcinogenic chemicals. Site-measured concentration comparisons with PRGs and background, in addition to consideration of the freque criteria in the selection of radionuclide contaminants of concern for soils. Site measured concentration comparisons with B&RE PRGs is a secondary criter contaminants of concern for soils.

[5] Presented as the number of detected concentrations of a contaminant exceeding the corresponding PRG over the total number of detected concentrations

[6] RBCs = Risk-based concentrations. U.S. EPA Region III RBCs correspond to a 1E-06 risk level for individual carcinogens and a systemic hazard quotient for individual noncarcinogenic chemicals. Site-measured concentration comparisons with RBCs and background, in addition to the frequency of detection, in the selection of chemical contaminants of concern for soils. It should be noted that Region III may incorporated some reference doses and/or slope fact RBCs that by now are outdated. The RBCs were updated accordingly. Since no RBCs were derived by Region III for radionuclides, Fermco derived RBCs from equations presented in Region III guidance for carcinogenic chemicals in soils.

[7] Presented as the number of detected concentrations of a contaminant exceeding the corresponding RBC over the total number of detected concentrations

[8] Radionuclide concentrations presented are in units of pCi/g.

[9] "+D" Indicates that risks from exposures to decay chain products were incorporated into the Fermco PRG.

[10] Concentrations presented for volatile organics, semivolatile organics, pesticides, and herbicides are in units of ug/kg.

[11] PCDDs = Polychlorinated dibenzo-p-dioxins; PCDFs = Polychlorinated dibenzofurans. PCDD and PCDF concentrations are presented in units of ng/g

[12] Concentrations presented for inorganics and miscellaneous parameters are in units of mg/kg.

[13] RBC presented for uranium is for the soluble salts of uranium.

[14] RBC presented for the cis-1,3-dichloropropene isomer is for 1,3-dichloropropene.

[15] RBC presented for endosulfan I and endosulfan II is for endosulfan.

[16] RBC presented for alpha- and gamma-chlordane is for chlordane.

[17] This radionuclide, which is a fission product and is not naturally occurring, is only expected to be present at or near detectable activities in soil. The prese only to atmospheric releases of radiation (e.g., weapons testing).

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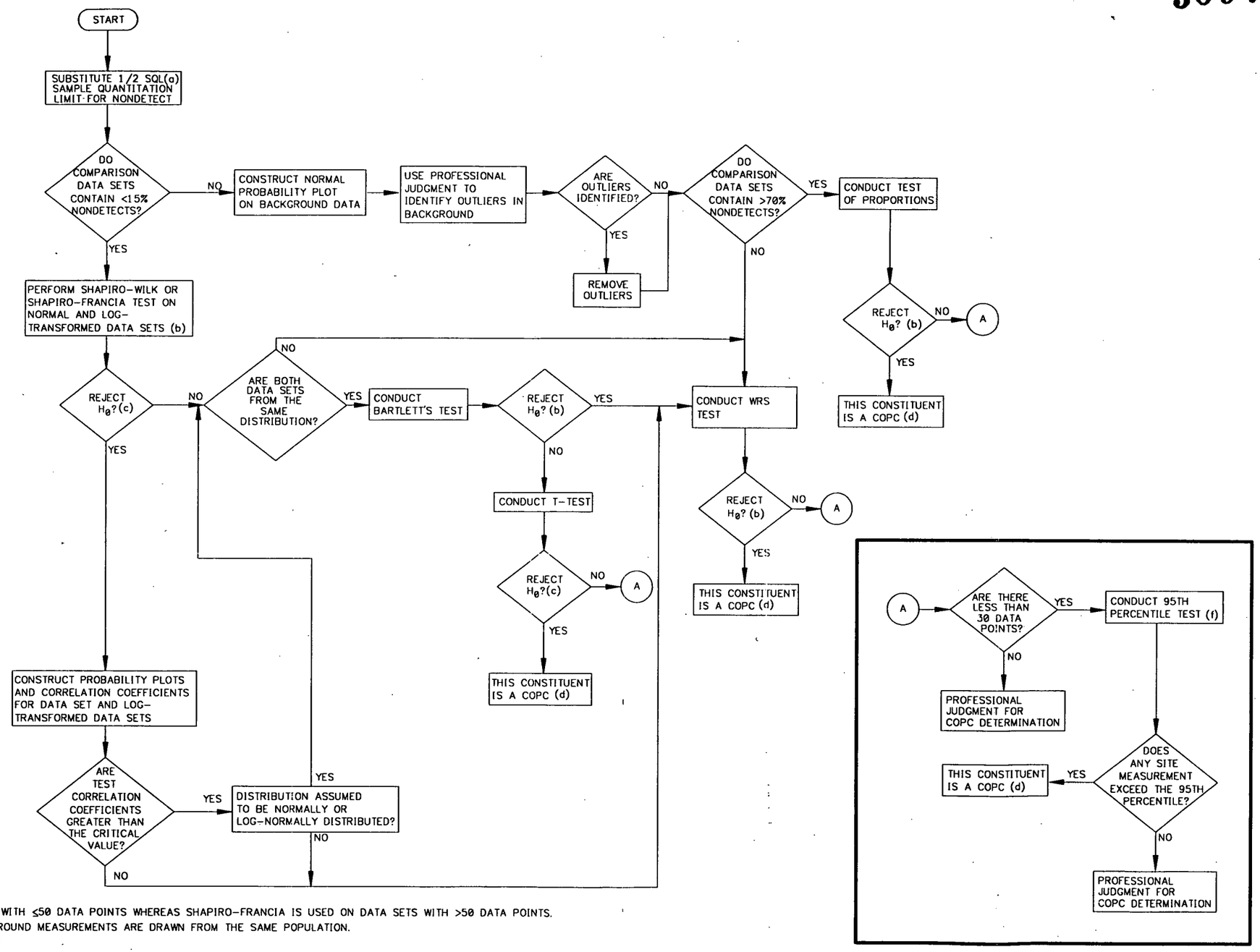

(a) SQL= SAMPLE QUANTITATION LIMIT
(b) SHAPIRO-WILK TEST IS USED ON DATA SETS WITH ≤50 DATA POINTS WHEREAS SHAPIRO-FRANCIA IS USED ON DATA SETS WITH >50 DATA POINTS.
(c) H_0=NULL HYPOTHESIS THAT SITE AND BACKGROUND MEASUREMENTS ARE DRAWN FROM THE SAME POPULATION.
(d) COPC="CONSTITUENT" OF POTENTIAL CONCERN
(e) 95th PERCENTILE OF THE BACKGROUND DATA IS USED AS AN UPPER LIMIT.

ACAD: W:\DATA\CADD\NG96\93121501.DWG 6/23/94 MB

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FIGURE A.2-1
STATISTICAL ANALYSIS
FLOW CHART FOR DETERMINATION
OF CONSTITUENTS OF POTENTIAL
CONCERN AT THE FEMP
OPERABLE UNIT 5

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A.3.0 HUMAN EXPOSURE ASSESSMENT

This section presents the methods for and results of an exposure assessment conducted for the Operable Unit 5 baseline public health risk assessment. As discussed in the U.S. Environmental Protection Agency's (EPA) Risk Assessment Guidance for Superfund (Volume I, Human Health Evaluation Manual Part A) (EPA 1989), exposure is defined as the contact of an organism (humans in the case of public health risk assessment) with a chemical or physical (e.g., radiological) agent. The magnitude of the exposure resulting from such contact is determined by measuring or estimating (e.g., modeling) the amount of an agent available at exchange boundaries (i.e., the lungs, gastro-intestinal system, skin) during a specific time period. Human activity patterns are a key determinant in predicting the nature and magnitude of potential exposures. Exposure assessment is the determination of the magnitude, frequency, duration, and route of exposures plausible under current and future land-use scenarios. Quantitative exposure assessment results in the estimation of an intake by a receptor theoretically exposed as a result of contact with contaminants of concern. The intake quantified during the exposure assessment is evaluated during the risk characterization to estimate potential health risks to receptor populations.

The exposure assessment involves three stages:

- Characterization of the operable unit setting
- Identification of contaminant migration and exposure pathways
- Quantification of exposure

The setting and physical characteristics of Operable Unit 5 are discussed in Section 3.0 of the Operable Unit 5 Remedial Investigation (RI) Report and summarized in Section A.3.1. A conceptual model for the risk assessment for Operable Unit 5 is developed in Section A.3.2. The conceptual model develops contaminant migration and exposure pathways from source terms in Operable Unit 5 through release mechanisms, secondary sources, exposure media, and exposure routes for each receptor applicable to the operable unit. The methods used to determine exposure point concentrations and quantitate intake are presented in Sections A.3.3 and A.3.4, respectively.

A.3.1 CHARACTERIZATION OF EXPOSURE SETTING

A detailed description of the setting and physical environment of the FEMP study area is presented in Section 2.0 of the Operable Unit 5 RI Report which addresses aspects of the local geography, surface topography, demographics, geology and hydrogeology, and ecology. A summary description of the physical environment is given in this section. Operable Unit 5 is defined as groundwater (including perched groundwater outside the boundaries of Operable Units 1, 2, and 4), soil not included in the definitions of Operable Units 1, 2, and 4, surface water, sediment, flora, and fauna. Surface water channels included in Operable Unit 5 are the Great Miami River, Paddys Run, and the storm sewer outfall ditch (SSOD). The Great Miami River receives the site effluent discharge. Paddys Run receives natural surface runoff and loses flow to the aquifer through its highly permeable channel bottom. The SSOD may receive excess storm water runoff from the storm water retention basin, in addition to runoff from the eastern area of the site. The groundwater of the Great Miami Aquifer is carefully monitored as part of Operable Unit 5 because it is a major local water source.

A.3.1.1 Geologic History

The geologic history of the FEMP is based upon Fenneman (1916), Brockman (1988), and the FEMP RI/FS investigations. In summary, the FEMP overlies a 2- to 3-mile-wide buried Pleistocene valley known as the New Haven Trough. This valley was eroded by the ancestral Ohio River during the Pleistocene and was subsequently filled with glacial outwash sands and gravel that were in turn covered by glacial overburden as a younger glacier advanced across the area. The outwash deposits under the FEMP are a part of the Great Miami Aquifer, which is a widely distributed buried valley aquifer. The valley fill aquifer system is a major source of drinking water and industrial water in southwestern Ohio. Much of the buried valley aquifer in the Great Miami River Basin has been designated a "Sole Source Aquifer" by the U.S. Environmental Protection Agency (EPA). This designation is given to aquifers that, if contaminated, would pose a significant risk to public health.

In Late Ordovician time (approximately 450 million years ago), sediment that would become a predominantly flat-lying shale with thin interbedded limestone was deposited in a shallow sea. This shale comprises the relatively impermeable bedrock which underlies the FEMP area and forms the highlands surrounding the Great Miami River and its tributaries.

In the last stage of glaciation, the Wisconsin, the ice sheet advanced only as far as the south side of the FEMP. The main effect of this glacial advance in the area of the FEMP was the displacement of

the Dry Fork of the Whitewater River from its historic channel into its present-day channel. As it retreated, the ice deposited a moraine which formed a dam and lake over much of what is now the FEMP. The dam was breached, draining the lake permanently. The lake basin is now part of the Paddys Run drainage basin.

Since the last retreat of continental glaciers, the streams in the area have removed portions of the glacial overburden. The Great Miami River has eroded laterally to remove glacial overburden east of the FEMP and has exposed a wide floodplain on the glacial outwash deposits that comprise the buried valley aquifer. Paddys Run and its tributaries are also in contact with these deposits in the stream's lower reaches.

A.3.1.2 Geologic Units

The FEMP is built upon a sequence of Wisconsin Age till, lake basin, and loess deposits that overlie the outwash deposits in the buried valley aquifer. To distinguish the Wisconsin Age deposits from the Illinoian outwash deposits, the former is collectively referred to as glacial overburden. The glacial overburden beneath the FEMP is predominantly clay-rich till that contains lenses of coarser-grained sediment. The glacial overburden is saturated beginning approximately 3 to 5 feet below the ground surface. The dominance of fine-grained particles in the till at the base of the glacial overburden restricts the vertical migration of contaminants to the underlying Great Miami Aquifer.

The oldest to youngest units are glacial till, lake basin fill, and aeolian loess. The till was spread by the advancing ice, is predominantly clay and is pervasive across the FEMP, except in areas where it has been removed by erosion or excavation activities. The lacustrine deposits overlie the till, are composed of predominantly clay and silt with scattered sand lenses, and are restricted to a former lake basin along the western margin of the FEMP. The basin fill, collectively referred to as lacustrine deposits, was probably deposited contemporaneously with the melting of the glacial ice. Both the till and lacustrine deposits contain interbeds of silt, sand, and gravel. The aeolian loess is very fine-grain, wind blown particles removed from the till and lacustrine deposits and redeposited in a blanket over the area by the wind. Approximately 50 percent of the sedimentary material within glacial overburden is comprised of carbonate minerals that exert a strong influence on the chemistry of perched groundwater (Section 3.5), due to their greater solubility relative to the remaining silicate minerals.

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Several approaches have been taken to quantify the restrictive properties of the gray clay rich till found at the base of the glacial overburden. The gray clay has the lowest permeability of all the sediments in the glacial overburden as is discussed in Section 3.6.1.1. The gray clay does not prohibit all movement of water. However the amount of water which can slowly drip from the glacial overburden down into the aquifer is in large part dependent upon its hydraulic properties.

The results from all the hydraulic conductivity tests in the glacial overburden at the FEMP indicate that:

- Clay and silt with low permeability control the migration and yield of water and therefore the movement of contaminants within the glacial overburden.
- Groundwater yields from the glacial overburden are negligible compared to the hundreds of gpm yields which are obtainable from the Great Miami Aquifer.
- Only three areas were capable of yielding 2-2.5 gpm to support a one-week constant-rate pumping test. These areas are beneath Plant 8, Plant 1, and in a channel located in the waste pit area.
- Drawdown trends observed in the Plant 8 and Plant 1 areas indicate that hydraulic communication is enhanced by the distribution of sand and gravel within the clay and silt.
- The areas capable of supporting a week-long constant-rate test at a pumping rate of 2-2.5 gpm have hydraulic conductivities that range from 1.5×10^{-3} cm/s to 8.4×10^{-3} cm/s, and are associated with the lake basin feature described in Section 3.4.5.
- The only large system of interconnected yield appears to be located beneath Plant 8 and Plant 1. The system is limited by the surrounding silt and clay which have hydraulic conductivity values of 10^{-4} cm/s or less. The data indicate that this area could sustain a yield of approximately 1 gpm for longer than a week.
- A channel located in the waste pit area indicates that smaller systems of interconnected yield also exist. The data indicate that the channel in the waste pit area could also sustain a yield of approximately 1 gpm for longer than a week. Most of these channel features are probably located south of the Shandon Tributary as this was the source of sediment during the time that the glacial till was being deposited. The possibility of other similar channel features located elsewhere on the FEMP property cannot be ruled out.

Groundwater is present in both the glacial overburden and within the sand and gravel of the Great Miami Aquifer. The glacial overburden is saturated from approximately 3 to 5 feet below the ground surface down to the base of the glacial overburden. Unsaturated conditions exist just beneath the base of the glacial overburden. Saturated conditions are again present at the Great Miami Aquifer water

table. Approximately 3 to 45 feet of unsaturated sand and gravel exist between the base of the glacial overburden and the water table of the Great Miami Aquifer.

Because of the unsaturated sediment below the glacial overburden, groundwater within the glacial overburden is said to be "perched" above the water table of the Great Miami Aquifer. The perched water table in the glacial overburden follows topography and slopes to the west-southwest. Beneath the former production area the average gradient ranges between 0.008 and 0.015. The overall vertical hydraulic gradient through the glacial overburden is 1, because unsaturated conditions are present at the base of the overburden.

In general the glacial overburden deposit does not supply groundwater in quantities sufficient for public water supplies. On the production area, a localized area of sand and gravel within the glacial overburden are capable of supplying a sustainable yield of approximately 1.0 gpm. A small channel in the waste pit area is also capable of supplying a sustainable yield of 1 gpm.

During the Illinoian glacial retreat about 125,000 years ago, the Deep Stage Valley, including the New Haven Trough, was filled with about 200 feet of glacial outwash sediment deposited by water running from the margins of the glaciers. The sediment consisted mainly of well-sorted sand and gravel distributed by braided streams that crisscrossed the valley floor. The thick sand and gravel deposits in the bedrock troughs formed the present-day Great Miami Aquifer. In the study area, the thickness of the Great Miami Aquifer varies from 120 to 200 feet thick in the center of the valley and tributary valleys to only a few feet along the valley walls.

Regionally the glacial outwash deposits are homogeneous and are typically described as well-sorted sand and gravel with only minor amounts of silt and clay however, silts and clays exist locally which make the aquifer heterogeneous. Outwash deposits in the Great Miami Aquifer are capable of sustaining yields of hundreds of gallons of water per minute, with exceptional wells reaching the thousands of gallon per minute range.

In the study area, the thickness of the Great Miami Aquifer varies from 120 to 200 feet thick in the center of the valley and tributary valleys to only a few feet along the valley walls. Regionally the glacial deposits are homogeneous and are typically described as well-sorted sand and gravel with only minor amounts of silt and clay.

Within the coarse-grained sediment of the Great Miami Aquifer, a clay interbed underlies most of the FEMP and parts of the area to the west. The clay interbed layer is uniform in texture and contains only a small amount of silt and sand. It was deposited in a lake or low-energy stream environment and in some samples displays thin light and dark layers called varves. The interbed pinches out to the south and east, extends an unknown distance to the west, and grades into glacial till deposits to the north in the Shandon Tributary. The clay interbed lies about 100 to 125 feet below the land surface and generally about 60 to 80 feet below the water table. Because of this interbed, which acts as an aquitard, the aquifer beneath the FEMP is divided into upper and lower halves.

A.3.1.3 Recharge, Movement, and Discharge in the Great Miami Aquifer

Groundwater enters the general FEMP area from three directions (Figure 2-2). The water levels and pattern of seasonal change clearly indicate that the Great Miami Aquifer and the perched groundwater in the glacial overburden are two distinct groundwater systems. In the northeast, groundwater moves southwest from the Ross area into the portion of the New Haven Trough now occupied by the Great Miami River.

The majority of this flow is captured by the SOWC collection wells. The second source of groundwater is the Shandon Tributary to the north of the FEMP, which contains a tributary of the New Haven Trough that extends under the town of Shandon (Figure 3-16). The groundwater from the Shandon Tributary flows under the waste storage and former production areas and exits along the eastern boundary of the FEMP to discharge into the Great Miami River. This flow also is influenced by the pumping of the SOWC collector wells. The groundwater and the Great Miami River exit this area through the New Baltimore outlet.

The recharge from the Dry Fork of the Whitewater River, located about 2 miles west of the FEMP, causes groundwater to move to the east toward the FEMP. This flow splits with a portion going east under the FEMP to the SOWC collector wells and a portion which turns southward under the southern part of the FEMP and flows south through the Paddys Run Outlet. Although these general flow patterns dominate the regional flow system, local and short-term variations do occur within it.

A.3.1.4 SURFACE WATER HYDROLOGY

The FEMP is located within the Great Miami River Basin drainage. The Great Miami River is the receiving stream for the FEMP waste water effluent discharge and represents the main surface water

feature in the vicinity of the FEMP. The river flows generally to the southwest and has a drainage area of approximately 3360 square miles (mi^2) at the Hamilton gauge, which is located about 10 miles upstream from the FEMP discharge outfall.

The average discharge of the Great Miami River at Hamilton, based on 55 years of records, is 3305 cubic feet/second (ft^3/s) (Miami Conservancy District 1993). Using drainage area scaling, the corresponding average flow at the FEMP point of discharge has been estimated to be 3460 ft^3/s. The maximum discharge ever recorded for the Great Miami River at Hamilton occurred on March 26, 1913 and was estimated to be 352,000 ft^3/s. The maximum discharge since the construction in 1922 of five retaining basins, located approximately seven miles upstream of Hamilton, was 108,000 ft^3/s and occurred on January 21, 1959. The 100-year-flood discharge has been calculated to be 81,455 ft^3/s for the site reach. The minimum daily discharge of 155 ft^3/s was recorded on September 27, 1941. This value is approximately half of the 7-day, 10-year low flow value of 267 ft^3/s, as computed by the USGS for the Hamilton gauge. This translates to 280 ft^3/s at the site reach for a 7-day, 10-year low flow.

Natural surface drainage from the FEMP is primarily to Paddys Run. Paddys Run originates north of the site, drains southward along the west side of the FEMP, and enters the Great Miami River approximately 1.5 miles south of the FEMP. Paddys Run is an ungauged, intermittent stream that flows primarily between January and May, with an estimated discharge for this period ranging between 0.2 and 4.0 ft^3/s (Dames & Moore 1985). Peak flows have not been measured. Paddys Run loses flow to the underlying aquifer along much of its course on and south of the FEMP due to its highly permeable channel bottom which is eroded into the Great Miami Aquifer. Infiltration modeling discussed in Section 5.3.2 indicates that recharge through the Paddys Run channel to the Great Miami Aquifer occurs at a rate of approximately 14 inches per year. The surface water model development and results are contained in DOE 1994i.

A principal drainage feature of the FEMP is a tributary to Paddys Run known as the SSOD. This drainage course originates east of the former production area, flows southwest across the southern portion of the site, and enters Paddys Run near the southwest corner of the property. The stream bottom in the southern portion of this drainage course is composed of sand and gravel which is part of the Great Miami Aquifer. Given the geologic similarity, the vertical seepage rates through the

stream bottom are similar to Paddys Run. Like Paddys Run, the SSOD drainage courses are generally dry in the summer and fall, with flows occurring during and immediately after precipitation.

The SSOD historically conveyed surface water runoff from the production area directly to Paddys Run when the capacity of the storm sewer lift station, which diverts low-flow storm water to Manhole 175, was exceeded. A storm water retention basin (SWRB) was constructed in October 1986 and expanded with construction of a second chamber in December 1988. After at least a 24-hour retention period to allow for settling of suspended solids, the water is pumped out of the basin to the Great Miami River via the FEMP's effluent line. The basin is designed to retain the runoff from a 10-year, 24-hour rainfall event; only in the event of an overflow would storm water from the production area now enter the SSOD.

A.3.1.5 Climate and Meteorology

Information on the local climate was obtained from the on-property meteorological system installed at the FEMP in 1986 and the National Weather Service (NWS) office at the Greater Cincinnati/Northern Kentucky International Airport. Rainfall records that supplement the NWS data were obtained from the Miami Conservancy District, whose staff collect data along the Great Miami River.

The average annual precipitation for the Greater Cincinnati area for the 30-year period from 1963 through 1992 was 40.86 inches and ranged from 27.99 inches in 1963 to 57.58 inches in 1990. The highest precipitation occurs during the spring and early summer. The maximum 24-hour rainfall event on record occurred in March 1964 when 5.21 inches fell. Precipitation is typically lowest in late summer and fall.

The average annual snowfall for the 1963-64 to 1991-92 30-year period was 22.9 inches, with the heaviest snowfall usually occurring in January. The maximum monthly snowfall of 31.5 inches occurred in January 1978. The maximum recorded snowfall over a 24-hour period occurred in March 1968 when 9.8 inches were recorded at the Greater Cincinnati/Northern Kentucky International Airport.

The regional climate is defined as continental, with temperatures ranging from a monthly average of 29.2°F in January to 75.7°F in July. The highest temperature recorded from 1963 through 1992 was 103°F in July 1988, and the lowest was -25°F in January 1977. Average ambient air temperatures

measured by the FEMP meteorological system for 1987 through 1993 are shown in Table 3-1. The average number of days per year with a minimum temperature of 32°F or less is 109 days, and the average number of days per year with a maximum temperature of 90°F or greater is 20 days. Maximum frost depth ranges from 30 to 36 inches.

A.3.1.6 Vegetation and Wildlife

Ecological communities on the FEMP consist of grazed and ungrazed pastures, two pine plantations, deciduous woodlands, and riparian woodlands. A total of 47 species of trees and shrubs, 190 species of herbaceous plants, 20 mammal species, 98 bird species, 10 species of amphibians and reptiles, 21 species of fish, 47 families of benthic macroinvertebrates, and 132 families of terrestrial invertebrates inhabit the FEMP.

Typical grasses found on the FEMP are red fescue, Kentucky bluegrass, timothy, and red top. Herbs include teasel, red and white clovers, and goldenrod. The dominant tree species in the pine plantations are white and Austrian pine, with Norway spruce occurring occasionally. Common trees in the deciduous woodlands are white ash, American elm, shagbark hickory, and slippery elm. Dominant tree species in the riparian woodlands are eastern cottonwood, hackberry, American elm, and box elder. Mammal species observed on the FEMP include white-tailed deer, coyote, red fox, opossum, raccoon, groundhog, eastern cottontail, fox squirrel, and several species of bats. Common small mammals are the white-footed mouse, short-tailed shrew, meadow vole, meadow jumping mouse, and eastern chipmunk. The most common birds breeding on site include the mourning dove, American robin, blue jay, American crow, American goldfinch, northern bobwhite, and common grackle. Species occurring in the greatest density are the goldfinch, song sparrow, and robin. Raptor species observed on site are the northern harrier, red-shouldered hawk, Cooper's hawk, red-tailed hawk, and American kestrel. The eastern screech owl and great horned owl are also common. Amphibians and reptiles that occur on the FEMP include the American toad, spring peeper, eastern box turtle, and snapping turtle. Several species of snakes also occur on site, including the eastern garter snake, Butler's garter snake, black rat snake, northern water snake, and the queen snake. Approximately 130 insect families from 15 orders are represented in FEMP habitats. Leaf hoppers are abundant in all habitats, although less abundant groups include short-horned grasshoppers, leaf beetles, springtails, fruit flies, dark-winged fungus gnats, ants, bees, and wasps.

The results of a survey indicated that wetlands at the FEMP are limited to a forested wetland of approximately 50 acres in the northern portion of the facility and emergent wetlands associated with tributaries and drainage ditches that feed into Paddys Run (DOE 1992d). The stretch of Paddys Run adjacent to the waste pit area is characterized as an unvegetated stream channel incised into surrounding uplands. Unvegetated stream channels do not meet the wetland criteria and would be classified as "other waters of the United States." As such, they would not be protected by wetlands regulations, but remedial actions affecting them would still be subject to the substantive requirements of the Clean Water Act.

A.3.1.7 Demography

The FEMP is located approximately 18 miles northwest of Cincinnati, and is the focal point of a regional market encompassing the following eight counties: Butler, Clermont, Hamilton, and Warren counties in Ohio; Boone, Campbell, and Kenton counties in Kentucky; and Dearborn County, Indiana. These eight counties also define the Cincinnati Consolidated Metropolitan Statistical Area. Population within the eight-county metropolitan area was more than 1.7 million in 1990, and within a 5-mile radius of the FEMP there was an estimated 22,927 residents. The labor force in the multi-county area was more than 920,000 with unemployment at approximately 6 percent in November 1993.

The cities of Hamilton and Fairfield are located 6 and 8 miles northeast of the FEMP, respectively. Scattered residences and several villages, including Fernald, New Baltimore, Ross, New Haven, and Shandon, are located near the FEMP. Concentrations of residential units are situated immediately north/northeast of the FEMP, in Ross, and directly east in a trailer park at the intersection of Willey Road and State Route 128. Other residences are scattered around the area, generally associated with farmsteads.

The nearest resident is located within 0.75 mile from the center of the facility. The nearest residences to the western FEMP property boundary (the boundary along the eastern side of Paddys Run Road) are located along the western side of Paddys Run Road. A dairy farm is located on Willey Road just outside the southeast corner of the FEMP property boundary (leased grazing areas include areas inside the FEMP property boundary). Several residences are located off Paddys Run Road approximately 0.5 mile south of the FEMP property boundary and along New Haven Road approximately 1 mile south of the FEMP property boundary. These residences are in the vicinity of

the South Plume, a portion of the Great Miami Aquifer that contains a plume of uranium contamination extending south of the FEMP property boundary approximately 0.5 mile.

A.3.1.8 Land Use

The land adjacent to the FEMP is primarily devoted to open land use such as agriculture and recreation. Agricultural activities include dairy, beef, corn, and soy bean production. Commercial activity is generally restricted to the village of Ross, approximately 3 miles northeast of the facility, along State Route 128 just south of the village. More than 400 acres of the open land on the FEMP are currently being leased to local dairymen for livestock grazing. Pine plantations are located northeast and southwest of the former production area. A considerable amount of the soil within the boundaries of the FEMP are designated by the U.S. Department of Agriculture as prime agricultural land (USDA 1980, 1982).

Several industries, including Delta Steel, Albright & Wilson Chemical Company, Ruetgers-Nease Chemical Company, two commercial gravel operations, and a cement plant, are located south of the FEMP. Industrial use is concentrated along Paddys Run Road, in the village of Fernald, and in a small industrial park on State Route 128 between Willey and New Haven Roads.

The Miami Whitewater Forest, a Hamilton County park, is located within 5 miles of the FEMP. The former Camp Ross Trails, owned by the Great Rivers Girl Scout Council, is located approximately 1 mile northeast of the FEMP.

A security fence surrounds the entire FEMP property, and a second line of fences surrounds several internal areas. These fences are regularly patrolled by a full-time security force. These active (security patrols) and passive (fences) access controls are currently in place at the FEMP. No hunting or fishing is allowed within FEMP boundaries.

A.3.1.9 Future Land Use

It is difficult to develop reasonable future land use scenarios at government facilities. Because many current remedial alternatives include in situ, or continuing on-site waste management, a reasonable future land use scenario would be that the government retains control of the property and restricts access in perpetuity in order to prevent future exposures. This scenario is addressed in the Operable Unit 5 Baseline Risk Assessment by evaluating risks to the off-property reasonable maximum

exposure (RME) farmer and the off-property child at several off-property locations, user of the Great Miami River, groundskeepers, and recreational receptors from future contaminant sources originating in Operable Unit 5.

Because of the uncertainty associated with future sociopolitical activities, it is prudent to evaluate the effect of future potential exposures assuming that the government loses control of the land. For the purposes of the risk assessment, "future land use" also considers unrestricted use of the property. Because some of the land surrounding the facility is currently used for farming, it is reasonable to assume that the FEMP property could be used as farm land at some time in the future. Scenarios that assume loss of institutional controls provide the basis for determining the level of cleanup necessary in order to eliminate the need for ongoing institutional controls. Under this agricultural scenario, risks are evaluated for the on-property RME farmer, the on-property child, the on-property central tendency (CT) farmer, the off-property RME farmer and child (evaluated at several points surrounding the site), the on-property RME farmer using "perched water," users of the Great Miami River, and the homebuilder.

A.3.1.10 Critical Subpopulations

According to the EPA Guidance (EPA 1989a), a baseline risk assessment must identify subpopulations of potential concern that could be at increased risk from radionuclide or chemical exposure from increased sensitivity, behavior patterns, and current or past exposures from other sources. These populations include infants and children, the elderly, pregnant and nursing women, individuals with chronic illnesses, and individuals previously exposed to chemicals or radionuclides during occupational activities or by residing in industrial areas. The current subpopulations of potential concern within the extended study area are identified below and are listed by the categories suggested by EPA (1989a). This extended study area includes the area within 5 miles of the FEMP and covers the area within 3 to 4 miles of the leading edge of the South Plume. Within this distance from the South Plume the population difference based on 1990 census data is negligible and the descriptions of potential sensitive subpopulations are essentially the same. Subpopulations of potential concern are identified using 1990 census data.

- Schools. No schools are located within 1 mile of the FEMP. Three school districts provide public education from kindergarten through high school for children living within 5 miles of the FEMP. These are Northwest, Ross, and Southwest school districts. The 1989-90 total enrollment in the six schools from these districts within 5 miles of the FEMP was 3316.

- Day-care Centers. No day-care facilities are located within 1 mile of the FEMP. Two day-care centers operate within the study area: (1) Ross Country Day Nursery, with an average enrollment of 126 students per day and a total weekly enrollment of 180, is located north of the intersection of State Route 128 and U.S. 27 about 2.5 miles northeast of the center of the FEMP, and (2) Venice Presbyterian Pre-School, with an average daily enrollment of 30 and a total weekly enrollment of 110, is located in the village of Ross approximately 2 miles northeast of the center of the FEMP.

- Hospitals, Nursing Homes, and Retirement Communities. No care facilities of these types operate within 5 miles of the FEMP.

- Residential Areas with Children. In 1988, approximately 58 adults and 29 children were residing within 1 mile of the FEMP. Most of the residences within the extended study area are scattered and reflect the agricultural setting of the area. Population concentrations include Ross, Harrison, Shandon, Fernald, New Haven, New Baltimore, and one large trailer park. An estimated 8140 children lived within 5 miles of the center of the FEMP in 1988.

- Commercial and Recreational Fisheries. No commercial fisheries operate within 5 miles of the center of the FEMP. Recreational fishing occurs on Whitewater Lake of the Miami Whitewater Forest Park. This heavily stocked lake lies completely within 5 miles of the FEMP. The Great Miami River supports no commercial fisheries in the vicinity of the FEMP, but recreational fishing occurs downstream from the FEMP. A fishing advisory for PCBs in bottom-feeding fish was issued in 1989 by the Ohio Department of Health based on data collected by the Ohio Environmental Protection Agency (OEPA).

- Major Industries Using Chemicals. No industrial facilities are located within 1 mile of the center of the FEMP. Three companies located within 2 miles of the FEMP center, Ruetgers-Nease Chemical Company, Albright & Wilson, and Chemical Lehman, store and handle chemicals. Collectively known as the Paddys Run Road Site, these facilities are classified as Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites, are listed on the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS), and are undergoing a state-led RI/FS. (Proctor & Gamble has a research facility approximately 2 miles east of the FEMP, which is listed on CERCLIS and has undergone a Screening Site Inspection by EPA.)

This demographic information is used to select receptors for the exposure assessments which provide an upperbound estimate on exposures to these sensitive populations. The selected critical subpopulations selected for quantitative evaluation in the baseline risk assessment are children and youths at the following schools: the Elda Elementary School to the northeast (Ross), Crosby Elementary School to the southwest, Morgan Elementary School to the northeast, St. John the Baptist School to the southeast, and Ross High School (See Figure A.3-5). These critical subpopulations were evaluated under current land use conditions.

A.3.2 CONCEPTUAL MODEL FOR OPERABLE Unit 5

A conceptual model for Operable Unit 5 has been developed to provide the basis for identifying and evaluating the potential risks to human health in the baseline risk assessment. The conceptual model presented in this section considers only the potential risks to human health. The potential impacts on ecological receptors are presented in Appendix B of the RI Report.

The conceptual site model facilitates consistent and comprehensive evaluations of the risks to human health by creating a framework for identifying the paths by which human health may be impacted by contact with the contaminants detected in the Operable Unit 5 environmental media. The conceptual site model depicts the relationship between the following elements necessary to construct a complete exposure pathway:

- Sources and potential constituents of concern
- Release mechanisms
- Transport pathways
- Exposure pathway scenarios
- Receptors

Figures A.3-1 and A.3-2 present the conceptual model for potential human exposure to the contaminants detected in the Operable Unit 5 environmental media. The conceptual model illustrated in these figures traces the exposure pathways and receptors for Operable Unit 5 from the source through primary release mechanisms, secondary sources and release mechanisms, and exposure routes and receptors. The conceptual model also indicates which exposure routes are carried through the quantitative risk assessment for each receptor under four land use scenarios: current land use with access controls, current land use without access controls, future land use with Federal ownership or institutional controls (government reserve), and future land use without Federal ownership or institutional controls (agricultural). Objectives of the development of the conceptual model and analysis of exposure routes and receptors are to focus on those pathways and sources that drive the potential impacts on human health risk, and to provide a rationale for screening other exposure pathways that are likely to pose minimal risks. As discussed in the following narrative, several on-property and off-property risk evaluation areas or receptor locations have been selected for the evaluation of risks to current and potential future receptors identified in the Operable Unit 5 conceptual model.

Risk evaluation areas (and associated potential receptors) identified for the Operable Unit 5 conceptual model are presented in Figures A.3-3 through A.3-7. The selection of these study areas was based on land use within the FEMP propertyline and properties in the vicinity of the FEMP. Because land use may change over time, the study areas evaluated under current land use scenarios are not exactly the same as those evaluated for future scenarios. The following risk evaluation areas for the current land use scenarios reflect current land usage:

On-Property Risk Evaluation Areas for Current Land Use Scenarios

Area 1	The administration/health and safety building
Area 2	Main production facilities area
Area 3	Northeast corner of production area
Area 4	Northwest corner of aroduction area
Area 5	Fire training area (just north of the production area)
Area 6	Sewage treatment plant area (located on the east boundary of the site)
Area 7	Northeast boundary area (east and northeast of the production area)
Area 8	Northwest boundary area (northwest area of the production area)
Area 9	Waste storage disposal area (west of the production area)
Area 10	Area south of the production area
Grazing Area 1	The southern grazing area
Grazing Area 2	The north/western grazing area
Grazing Area 3	The eastern grazing area
Grazing Area 4	Potential future grazing areas

Study areas 1 through 4 comprise the former production area. For purposes of risk assessment, the former production area was subdivided into these four sections based on the manufacturing, storage, or disposal activities occurring in the past and the magnitude of uranium contamination detected in the RI/FS soil samples. Area 1 is the administration and health and safety area. The main production facilities are found in Area 2. As discussed in Section 4.0 of the Operable Unit 5 RI Report, significant subsurface soil contamination has been detected in soil underlying production facilities (e.g., Buildings 2/3, 6, and 9) in this area. Areas 3 and 4 are the northeast and northwest corners of the former production area, respectively. Several storage, maintenance, and disposal facilities exist (or existed) in these two areas. Areas 5 through 10 are within the FEMP boundary and peripheral to the former production area. The fire training area and sewage treatment plant are the significant

features of Areas 5 and 6, respectively. Area 7 extends to the eastern boundary of the FEMP and is downwind of the former production area. Area 8, which extends to the northern boundary of the FEMP, exhibits minimal soil contamination when compared to the other areas. Areas 9 and 10 extend to the west and south, respectively, and encompass Operable Units 1 and 4, and Operable Unit 2, respectively. Grazing areas No. 1, No. 2 and No. 3 (Figure A.3-4) are currently leased to local farmers. Grazing area No. 4 is hypothetical only, assuming land-use restrictions and access controls are eliminated.

In order to evaluate potential risks to off-property residents receptors under the current land use scenario, measured soil and groundwater concentrations and modeled air concentrations along the boundaries of the FEMP and CPC concentrations in the GMR and Paddys Run are evaluated.

Off-Property Risk Evaluation Areas for Current Land Use Scenarios

Northern boundary
Eastern boundary
Southern boundary
Western boundary
Northeast of FEMP (downwind of the FEMP)
Southeast of FEMP
Great Miami River - below effluent outfall
Great Miami River - confluence with Paddys Run
Paddys Run - off-property

Four property boundary risk evaluation areas are shown in Figure A.3-4. The northern and eastern boundaries of the site are chosen as receptor locations because the predominant wind direction is northeast/east. In general, the groundwater (i.e., the Great Miami Aquifer) underlying the FEMP flows to the southeast. Thus, the eastern and southern boundary of the FEMP are important hypothetical receptor locations for the groundwater exposure pathways. (The western boundary of the FEMP is included in the analysis for purposes of completeness.) The receptor locations at the property boundary are assumed to represent reasonable maximum exposure locations for off-property receptors. Potential receptors located off the northeast and southeast corners of the FEMP property line and directly east of the FEMP are also evaluated in the baseline risk assessment. The northeast corner is selected as a receptor location because a small residential community is located in this area. A dairy farm abutts the southeast corner of the FEMP (the southeast corner receptor).

Risk evaluation areas considered for the future land use scenarios reflect potential future land use on-property and off-property in the vicinity of the FEMP. It is assumed that the FEMP may be used for agricultural purposes. Consequently, some of the on-property risk evaluation areas identified for the current land use scenario have been combined to consider the potential for agricultural use of larger areas. For example, areas 1 through 4 were combined into the production area and areas 5 through 7 were combined into the northeast area. However, Area 10, the largest on-property study area, was subdivided into three areas, (study area 10A, 10B, and 10C) because it is large enough to be subdivided and used for different purposes, because of the location of Operable Unit 2, and because contamination profiles of CPCs (particularly lead) [appear to be] significantly different in the soil samples collected across Area 10. For example, maximum lead concentrations in risk area 10A (the former shooting range) exceed the EPA limit for lead concentrations in soil [1000 mg/kg]. Historical information available for the site indicates that minimal site activities were conducted in risk evaluation area 10B (the eastern half of area 10). Operable Unit 2 source areas exist in risk area 10C (the western half of area 10). The on-property risk evaluation areas for the future land use scenarios and their corresponding current land use risk evaluation areas are presented in the following table:

On-Property Risk Evaluation Areas for Future Land Use Scenarios

Production Area	Corresponds with Areas 1-4 under current land use
Northeast Area	Corresponds with Areas 5-7 under current land use
Northwest Area	Corresponds with Area 8 under current land use
Waste Pit Area	Corresponds with Area 9 under current land use
Southeast Area	Corresponds with the eastern half of Area 10 (southeast corner of FEMP) under current land use
Southwest Area	Corresponds with the western half of Area 10 (southwest corner of FEMP) under current land use
Shooting Range	Corresponds with the northeast corner of Area 10

The fenceline and off-property risk evaluation areas for the future land use scenario are listed in the following table:

Off-Property Risk Evaluation Areas for Future Land Use Scenarios

Northern boundary
Southern boundary
Eastern boundary
Western boundary
Northeast corner of FEMP

Southeast corner of FEMP
Well 2071
Well 2119
Well near GMR
Great Miami River - confluence with Paddys Run

The fenceline areas and northeast and southeast corner receptors are the same as those specified for the current land use scenarios. Additionally, three off-property discrete receptor locations (Well 2071, Well 2119, Well near GMR) downgradient and downwind of the site are evaluated.

Sections A.3.2.1 through A.3.2.4 describe the elements of the conceptual site model in detail. At the end of Section A.3.2.4, a summary table presents a matrix of the conceptual model's exposure pathways and receptors that will be carried through the quantitative risk assessment. The matrix presents exposure pathways and receptors separately for each of the four land-use scenarios. A summary of quantitative risk results are presented in Section A.5.0 of the risk assessment.

A.3.2.1 CPCs in Environmental Media

Surface Water and Sediment

Surface water and sediments were sampled during the RI/FS field sampling programs to examine contaminant concentrations in drainages that transport surface water runoff from the FEMP to potential offsite receptors. The major drainages are the Pilot Plant drainage ditch, Paddys Run, and the Great Miami River. Organics contaminants detected in surface waters and sediments and selected as constituents of potential concern were identified in Section A.2. Metals and radiologicals selected as CPCs on the basis of a comparison to background are presented in Attachment A.IV.

The Pilot Plant drainage ditch originates on site and drains into Paddys Run onsite, just south of the K-65 silos. Contaminants present in the Pilot Plant drainage ditch include radionuclides (particularly uranium), organic compounds and inorganics.

Paddys Run flows into the Great Miami River. Elevated levels of uranium, radium and thorium isotopes have been detected in the surface waters of Paddys Run. Sediments in stretches of Paddys Run which are on site show above-background levels of uranium; uranium concentrations in off property sediments are similar to background levels. Based on the information presented in Section 4 of the RI report, Paddys Run is currently to contribute minimal contamination from the FEMP to the Great Miami River.

The Great Miami River is the primary drainage feature in the vicinity of the FEMP. The Great Miami River receives a steady flow of contaminated water in the form of effluent from the FEMP via the outfall line. Sediments in the vicinity of the outfall line show elevated levels of radionuclides, metals, and organic compounds (predominantly PAHs). However, these levels decrease rapidly downstream. The most recent data suggests that surface water and sediments in the Great Miami River have been minimally impacted, due to dilution upon entry into the river.

Perched Groundwater

Perched groundwater has been characterized at more than 260 Type I monitoring well locations. The RI/FS field sampling has revealed the presence of seven broadly contaminated areas where multiple contaminants (radionuclides, organics, and inorganics) are present above background concentrations in the perched groundwater:

- Production area (Area I Plume)
- Sewage treatment plant area (Area II Plume)
- Operable Unit 2 southfield/fly ash pile area (Area III Plume)
- Operable Unit 4 K-65 silos area (Area IV Plume)
- Operable Unit 1 waste pit/operable unit 2 solid waste landfill area (Area V Plume)
- Fire training area (Area VI Plume)
- Operable Unit 2 lime sludge pond area (Area VII Plume)

With the possible exception of the eastern edge of the Area II plume in the sewage treatment plant area, none of the seven perched groundwater plumes extend offsite. However, further migration of the Area II plume eastward is not anticipated as the direction of perched groundwater flow is westward in the vicinity of the sewage treatment plant (further discussion is provided in Section 4.0). CPCs detected in the perched water underlying the production area and the sewage treatment plant are presented in Attachment A.IV.

Great Miami Aquifer Groundwater

The groundwater in the Great Miami Aquifer has been characterized at more than 320 Types 2, 3 and 4 monitoring well locations. The RI/FS field sampling has revealed the presence of six distinct plumes in the Great Miami Aquifer that each result from discrete points of contaminant entry into the aquifer. These entry points are found at locations where the glacial overburden is thin or absent and site contaminants are available for infiltration.

Uranium-238, uranium-235/236, uranium-234 and some inorganic contaminants were detected in most of the plumes. Other contaminants including radionuclides, inorganics, and VOCs are also present in the Great Miami Aquifer as isolated occurrences above background. These analytes do not display the plume-like patterns seen for the six plumes.

The six identified plumes and their accompanying source relationships are:

- Waste Storage Area A Plume: This plume results from the direct infiltration of leachate from areas in the Operable Unit 1 waste pits. Contaminants move eastward from the point of entry.
- Waste Storage Area B Plume: This plume originates from the infiltration of contaminated surface water runoff through the Paddys Run streambed south of the Operable Unit 1 waste pits. Contaminants move southeastward from the point of entry.
- Plant 6 Area Plume: This plume results from the entry of contaminated perched groundwater into the Great Miami Aquifer in the vicinity of Plant 6. Contaminants move eastward from the point of entry.
- South Plume A: This plume originates as infiltration that occurs adjacent to and beneath the Operable Unit 2 southfield and fly ash pile waste units. Contaminants flow eastward from the source area to a point where it is commingled with South Plume B.
- South Plume B: This plume results from infiltration that occurred from the surface water in the Storm Sewer Outfall Ditch and Paddys Run. Contaminants move eastward in the northern portion of South Plume B, and southeastward in the southern portion of South Plume B. At its southern margin, South Plume B is commingled with the PRRS plume.
- South Plume C: This plume originated as contaminated surface water flow of Paddys Run south of South Plume B. Contaminants move southeastward away from Paddys Run. South Plume C is also commingled with the PRRS plume.

South Plume B, South Plume C, and the western margins of the Waste Storage Area A and B Plumes extend offsite. The Plant 6 Area Plume and South Plume A remain onsite. CPCs detected in GMA fenceline monitoring wells and off-property South Plume wells north of the Paddys Run Road Site Industries are presented in Attachment A.IV.

Soils within the Former Production Area

Surface and subsurface soils within the Former Production Area were sampled during the RI/FS field sampling programs and other programs to characterize the vertical and horizontal extent of contamination resultant from air deposition of particulate emissions. Above background concentrations of uranium

isotopes are prevalent in surface soils across the former Production Area and portions of the Administrative and Laboratory Areas. Other radiological, and chemical constituents were also detected within the former processing areas. The occurrence of these other constituents was generally more localized and encompassed within areas exhibiting above background concentrations of uranium. Figures in Attachment A.IV profile the representative concentrations of several radionuclides and metals detected in on-property surface soils at concentrations exceeding background. CPC in soils of the designated current and future risk evaluation areas are presented in Attachment A.IV.

Soils Outside the FEMP Property

Surface and subsurface soils outside the FEMP were sampled to determine if radionuclides had been released into the surrounding soil. Elevated radionuclide levels were found predominantly in the 0- to 0.167-foot samples. Radionuclide levels decreased significantly with depth, indicating contamination is limited to the surface soil.

Isolated higher concentrations of uranium were found primarily along the north and east property boundary and the outfall line. The probable source for the elevated levels of uranium is airborne contaminants from sources within the FEMP.

Subsurface contamination for radionuclides is found primarily along the outfall line, located to the east of the FEMP. Two potential sources are leakage from the old outfall pipeline in the untested section near Manhole 181 and/or phosphate fertilizers, which are known to contain uranium and thorium.

A.3.2.2 Release Mechanisms

Chemicals and radionuclides may be released to the environment by a number of processes referred to as release mechanisms in this report. The release mechanisms of interest may change under different land use assumptions and are affected by the passage of time.

Release mechanism influences are considered by evaluating current and future land-use scenarios. The first scenario, called the current land-use scenario, reflects the physical state of the operable unit as it exists today. The second, or future land-use scenario, considers the potential changes that may occur on the operable unit over time. These two source-term scenarios bound the range of types and relative magnitudes of releases reasonably expected to occur within the defined boundaries of Operable Unit 5.

A.3.2.2.1 Potential Release Mechanisms Under Current Land Use

The current land-use scenario considers the types of environmental releases reasonably expected to occur under two types of access control: with access controls and without access controls. As stated previously, current land use with access controls assumes that access restrictions and engineering controls remain in place. This implies that the site remains much as it is now. Current land use without access controls assumes access restrictions are discontinued but engineering controls continue to function.

The conceptual site model depicted in Figure A.3-1 presents the release mechanisms evaluated under current land use in this assessment. The physical configuration of the site used to develop this conceptual model is based on the following assumptions:

- The presence of buildings is ignored, and the soil beneath buildings is treated as being completely accessible. The impacts associated with leaving portions of the infrastructure intact is investigated in the Operable Unit 3 RI/FS.
- The property's vegetative cover is consistent in quantity and quality with surrounding properties (85 percent vegetative coverage).
- The infiltration rate through the site soil does not change.
- Surface water runoff is collected and discharged by the existing containment basins and effluent lines.
- The effects of radiological and chemical decay of the source are assumed to be minimal.

As discussed in Section A.3.2.1, sources of radionuclides and chemicals in Operable Unit 5 which could be released to the environment include potentially contaminated soil, surface water and sediment, and groundwater. Release mechanisms evaluated for these sources are discussed in the following paragraphs.

Surface soil containing contaminants from a variety of sources within the operable unit act as a source term by several different mechanisms. Displacement of exposed soil can occur via wind erosion or by surface water runoff. The rate of wind erosion is related to wind velocity, the surface area of exposed soil, and the amount of vegetative cover present. The rate of surface water erosion is related to the amount of rainfall, the slope of the ground surface, the surface area of exposed soil, and amount of vegetative cover present. Volatilization of organic compounds detected in the soil and radon emission are also pathways that must be considered. Details of the air modeling effort are included in Section 5.3.1.

Grazing animals constitute a secondary release mechanism from soil present in Operable Unit 5 under current land use. Grasses and other edible plants take up chemicals via their roots and sequester these materials in the tissue of the plant. Subsequent ingestion of these plants by cattle, along with associated soil and surface water in these areas, may result in uptake by human receptors when meat and milk products from these animals are consumed.

Areas of groundwater in Operable Unit 5 are present in the form of "perched" water pockets. This water eventually percolates into the Great Miami Aquifer, carrying chemicals present in the perched water to this deeper aquifer (Section 5.0 of the accompanying RI report).

A.3.2.2.2 Potential Release Mechanisms Under Future Land Use

The future land use scenario considers the impact of time on the physical configuration of the operable unit, as well as different access control possibilities. Two access control configurations were evaluated under future land use - restrictions expected if the government retains control of the property (government reserve), and a complete lack of access controls (agricultural use scenario). Under the government reserve scenario, transient receptors have access to all areas of the site, and engineering controls are discontinued. Under agricultural land use, engineering controls cease and receptors may live on the property. In either case, the release mechanisms were identified by considering both the site's future possible configurations and the processes that would act on the site and its contents if all maintenance activities were discontinued.

The conceptual model of the site's future configuration included in Figure A.3-2 assumes the following:

- The presence of buildings is ignored and the soil beneath buildings is treated as being completely accessible.
- Vegetative cover is consistent with local agricultural practices and ecological succession (85 percent vegetative covering is assumed for Federal ownership/institutional control or non-agricultural land use scenarios and 50 percent vegetative covering is assumed for no access controls or agricultural land use scenarios).
- The biodenitrification surge lagoon and storm water runoff basins become silted in and are nonfunctional.
- Infiltration rate through the site soil is essentially unchanged by the passage of time.

- Surface water runoff is no longer collected and discharged by the existing containment basins and effluent lines. Instead, excess surface water runoff flows to Paddys Run and SSOD into the Great Miami River.

- Radiological and chemical decay significantly affect (e.g. in the groundwater modeling) the quantities and types of some radionuclides and organic chemicals found on the site.

- Depletion of constituents by leaching attributable to surface water percolating through surface soil does not occur.

- A house is placed within the area(s) of the site and domestic water supply wells are installed.

The passage of time and changes in land use are expected to increase the importance of some of the release mechanisms discussed previously. However, the mechanisms considered under the current land use scenario are assumed to be the same as those considered when evaluating future land uses.

A.3.2.3 Exposure Mechanisms and Exposure Routes

A receptor can come into contact with constituents of potential concern in a variety of ways, generally as the result of interactions between a receptor's behavior or lifestyle and a contaminated exposure medium. This assessment defines an exposure mechanism as a stylized description of the behavior that brings a receptor into contact with a contaminated medium.

An exposure route describes how a constituent enters and affects the human body. Exposure routes are divided into two types: internal exposures and external exposures. Internal exposures occur when contaminants are introduced directly into the human body through inhalation, ingestion, and absorption across dermal surfaces. External exposures do not require physical contact and occur when a receptor is close to a radioactive constituent. Such exposures are only considered for gamma-emitting radionuclides and result in the irradiation of an individual by penetrating radiation from a radioactive source.

The remainder of this section describes the various combinations of exposure mechanisms and routes evaluated in this assessment.

A.3.2.3.1 Exposures from Immersion in Air

This pathway assumes a receptor is immersed in air containing suspended particulates, gases such as radon, and volatile organic vapors originating in soil or waste. Subsequent exposures can occur via inhalation.

A.3.2.3.2 Exposures from Aerial Deposition onto Soil and Edible Plants

Airborne particulates tend to settle out of the air over time. When these particulates settle out over farmland, they can be deposited onto surface soil or on the surfaces of plants. This contamination can remain affixed to the outside of the plant or fall to the ground, where some will be absorbed through the plant's root system. These plants are then used directly as food or are ingested by livestock. Exposures can occur either by incidental ingestion of soil; by dermal contact with soil; by ingestion of fruit, vegetables, meat, or dairy products; or as a result of exposure to penetrating radiation from the soil.

A.3.2.3.3 Exposures from Direct Contact with Soil, Sediment, or Surface Water

Receptors may come into direct contact with contaminated soil, sediment, or surface water. During the receptor's period of contact, the individual may be exposed via inadvertent ingestion of a small amount of this material or through dermal contact with these contaminated media.

A.3.2.3.4 Exposures from Livestock and Crops Grown in Soil

This exposure mechanism is based on harvesting contaminated food crops and using animal products for human consumption. Food crops grown for human or animal consumption may become contaminated via root uptake of chemicals and radionuclides from contaminated soil. Contaminants in animal feed are subsequently bioaccumulated into edible tissue or milk, which can be ingested by off-site residents.

A.3.2.3.5 Exposures from Use of Shallow Wells

Perched groundwater at Operable Unit 5 lacks the volume and water quality necessary for use as a consistent water supply, although it is conceivable that limited use could occur (see Section A.3.1.3). EPA Region V has requested that exposures to perched water be addressed. Therefore, ingestion and domestic uses of water from a shallow well installed in the perched water zones beneath the operable unit is included in the risk assessment under future land use. The water evaluated is considered to be derived from leaching by surface water percolating through the soil.

A.3.2.3.6 Exposures from Using Aquifer Water for Drinking and Domestic and Agricultural Purposes

Groundwater in the Great Miami Aquifer has historically been used as the water supply in the vicinity of the FEMP. This exposure mechanism entails using this water to supply a small farm for all uses including: ingestion, showering, cooking, irrigation of food crops, irrigation of animal feed, and stock water. Multiple exposure routes are considered including: ingestion, dermal contact, inhalation during showering, and ingestion of food that has been directly or indirectly contaminated. Penetrating radiation

from contaminated water was qualitatively eliminated from consideration because of the types of radionuclides reported, their low concentrations, and the shielding ability of water (EPA, 1989a).

A.3.2.3.7 Exposures from Using Surface Water as Stock Water

Livestock may obtain their drinking water from on-property sources while pastured in Grazing Areas 1, 2, and 3. For example, standing water is occasionally found in a few places along the intermittent stream known as Paddys Run.

A.3.2.3.8 Direct Exposure to Radioactivity

Exposures from radioactive material can occur when a receptor is near a radioactive source. Physical contact with a contaminated exposure medium is not necessary for exposure to penetrating radiation. The magnitude of exposure is directly related to the distance of the receptor from the source. Exposures can be reduced when shielding, such as a building floor or wall, is interposed between the receptor and the source of radioactivity. Penetrating or direct radiation is a concern in Operable Unit 5.

A.3.2.3.9 Exposures from Using the Great Miami River for Domestic, Agricultural, and Recreational Purposes

The Great Miami River (GMR) is large enough to serve as a water supply for a farm located near its banks. This water could conceivably be used for any of the following purposes: drinking, showering, cooking, irrigation of food crops, irrigation of animal feed, stock water, and recreational purposes such as swimming and fishing. However, the most realistic use of GMR water is recreational use. People have been seen occasionally fishing or wading/swimming in the river during warmer months. Although, presently there is no record of anyone using GMR water for household use and such an usage is unlikely without prior filtration, potential exposure pathways resulting from household use are also evaluated. Exposure routes included in the baseline risk assessment were: ingestion, inhalation during showering, dermal contact, ingestion of fish and ingestion of agricultural food products. Penetrating radiation from contaminated water was eliminated from consideration because of the types of radionuclides reported in surface water, their low concentrations, and the effective shielding characteristics of water.

A.3.2.4 Receptor Exposure Pathway Scenarios

The conceptual model for the Operable Unit 5 risk assessment considers four land-use scenarios for the purpose of defining potential receptors and exposure pathways:

- Current land use with access controls
- Current land use without access controls
- Future land use with Federal ownership or institutional controls (government reserve)
- Future land use without Federal ownership of institutional controls (agricultural).

The current land-use scenarios define receptors and exposure pathways that are evaluated assuming the current land use (industrial) continues. The future land-use scenarios define receptors and exposure pathways that are plausible if federal ownership continues or if the land usage reverts to agricultural purposes and becomes occupied.

Detailed descriptions of potentially exposed receptors that are selected for the Operable Unit 5 risk assessment conceptual model are obtained from the Risk Assessment Work Plan Addendum (DOE 1992) and Supplemental Guidance to the Risk Assessment Work Plan Addendum, (DOE 1994) for the four land-use scenarios.

A.3.2.4.1 Current Land Use With Access Controls

Under the current land-use scenario, the FEMP facility is defined as a facility operated by the DOE. With access controls, the site access restrictions historically provided by the DOE are maintained by the DOE. In addition, there has been no remedial action of the Operable Unit 5 environmental media beyond that completed to date. The presence of buildings within the former production area are ignored but the soil currently under them is assumed to be completed accessible to appropriate Operable Unit 5 receptors. The assessment of risks from sources and buildings in Operable Unit 1, 2, 3, and 4 is considered within the preview of those operable units. The storm water retention basins and the South Plume Recovery Well System remain operational.

Under the scenario with access controls, members of the public do not establish residence on the Operable Unit 5 study area. However, as discussed previously, farmers do use on-site areas for pasture land. A trespassing youth receptor is considered under this scenario in accordance with EPA's conventional practice. A visitor receptor is also considered. However, it is assumed that neither the visitor nor the trespassing youth receptor has access to the main production area facilities (risk evaluation area 2, 3,

and 4) or the sewage treatment plant facilities (risk evaluation area 6). In contrast, the groundskeeper receptor is assumed to have access to all sections of the production area in the course of his/her duties. Also, off-property residential receptors (the off-property user of the Great Miami River, off-property residential receptors) are evaluated for this scenario. The receptor exposure scenarios included in the Operable Unit 5 conceptual model include:

- Trespassing Youth Receptor - This hypothetical exposure considers the risk incurred by a trespassing youth in all areas of the FEMP except the production area (Areas 1-4). Exposure routes include:

  - Inhalation of fugitive dust, volatiles, and gases

  - Incidental ingestion of, direct radiation exposure from, and dermal contact with contaminated soil and sediment

  - Incidental ingestion of and dermal contact with surface waters of Paddys Run and on-site surface drainage ditches

- Groundskeeper Receptors - This scenario evaluates industrial/occupational exposure to an individual. It assumes that non-DOE workers are present on the property. The groundskeepers are full-time employees who work in a plant/building in the production area, but also maintain fences, cut grass and perform general security on a regular basis (one day per week) in all areas of Operable Unit 5 (including the production area). Exposure routes for this receptor include:

  - Inhalation of fugitive dust, volatiles, and radon
  - Incidental ingestion of soil
  - Dermal contact with CPCs in soil
  - External radiation exposure from contaminated soil

- Off-Property Farmer and Child Receptors - This exposure scenario assumes that a farm family lives immediately adjacent to or close to the FEMP property boundary (fencelines). Exposures to the farm family were evaluated along the four fenceline boundaries of the FEMP (north, south, east and west), and at the northeast and southeast corners of the FEMP. The farm family is exposed to air, groundwater and soil, however under the assumption of access controls (ie. continued government ownership), it is assumed that the farm family would be supplied with bottled water for ingestion. As described in Section A.3.2.4.2 under current land use without access controls, the farm family is assumed to have unrestricted use of groundwater. Exposure routes include:

  - Inhalation of fugitive dust volatiles, and gases
  - Consumption of farm-produced foodstuffs, including vegetables, meat, and milk
  - Dermal contact and inhalation while using groundwater in the home
  - Incidental ingestion of, direct radiation exposure from, and dermal contact with contaminated soil

- Off-Property Use of Surface Water from the Great Miami River - This exposure scenario assumes that an individual obtains water from the river for either domestic, agricultural or recreational uses, or any combination of the three. This receptor was evaluated at the Outfall Effluent Line and the Great Miami River Confluence with Paddys Run. Exposure routes evaluated include:

  - Incidental ingestion of surface water while swimming
  - Inhalation of volatile organic compounds (VOCs) from use of water in the home
  - Dermal contact with surface water
  - Ingestion of farm-produced foodstuffs, including vegetables, meat, and milk
  - Ingestion of fish caught in the river
  - Ingestion of drinking water

- Visitor - This scenario investigates the exposures incurred by the activities of a regular visitor to the FEMP site who is not covered by a health and safety or radiation protection program. An example of this receptor would be a delivery person making regular deliveries to the administration building in the former production area (Area 1). Exposure routes for this receptor include:

  - Inhalation of fugitive dust, volatiles, and gases
  - External radiation exposure from contaminated soil

- Consumer of Milk and Meat Products (On-property grazing) - This scenario considers the risks associated with off-property use of animal products produced by cattle currently grazing on FEMP property (Grazing Areas 1-3). Exposure routes evaluated are:

  - Ingestion of meat
  - Ingestion of milk

- Off-Property Critical subpopulations - This scenario considers exposure to local school children and youths, (identified in section A.3.1.10 - grades K through 8 for elementary students and grades 9 through 12 for high school students), from potential resuspension of soil from the FEMP. The route evaluated is:

  - Inhalation of fugitive dust, volatiles, and gases

A.3.2.4.2 Current Land Use Without Access Controls

In this scenario, no access controls exist, access restrictions at the FEMP site historically provided by DOE are assumed to be discontinued by DOE, and the FEMP site is operated by an industrial concern other than DOE. In addition, no remedial action of Operable Unit 5 environmental media is assumed to have been taken beyond that already accomplished. Under current land use, this represents the most conservative scenario for assessing baseline risks.

The risk assessment under the scenario without access controls assumes that members of the public do not establish residence on the Operable Unit 5 study area. The receptor exposure scenarios included in the Operable Unit 5 conceptual model include:

- Off-Property Farmer and Child Receptors - This exposure assumes that a farm family lives immediately adjacent to or at a point location close to the FEMP property boundary fencelines. This scenario is identical to that assumed under current land use assuming access controls except under this scenario it is assumed that the farm family has unrestricted use of groundwater and the potential on-property grazing areas (Grazing area 4) previously unavailable due to DOE land-use restrictions. Therefore, the exposure routes for these receptors are the same as those specified for the same receptors under the current land use scenario with access control, with the addition of ingestion of groundwater.

- Exploring Youth Receptor - This hypothetical exposure considers the risk incurred by a child in all areas of the FEMP (Areas 1-10), particularly the on-site Paddys Run area. Exposure routes for this receptor are the same as those specified for the trespasser receptor under the current land use scenario with access controls. However, it is assumed that the production area and the sewage treatment plant area would also be accessible to the receptor.

- Visitor - This scenario investigates the exposures incurred by the activities of a regular visitor (e.g., a delivery person) to the FEMP. Exposure routes for this receptor are the same as those specified for this receptor under the current land-use scenario with access controls. However, it is assumed that the production area (Areas 1-4) would be accessible to the receptor.

- Consumer of milk and meat products - Again, this scenario considers risks associated with off-property use of animal products produced by cattle currently grazing on FEMP property. Exposure routes for this receptor are the same as those specified for this receptor under the current land-use scenario with access controls. However, it is assumed that the hypothetical Grazing area 4 would be accessible to the cattle.

The groundskeepers, off-property use of the Great Miami River water, and the critical subpopulations, are also plausible receptors under this land use scenario. However, these receptors will have the same risks as those predicted for the current land use with access controls. This is because access controls only effect the possibility of exposure point locations to receptors on property. In the case of the groundskeeper, this receptor is assumed to have access to the entire site regardless of access controls.

A.3.2.4.3 Future Land Use With Federal Ownership (Government Reserve)

The future land-use with Federal ownership scenario assumes that the Federal government continues to maintain control over the land use at the FEMP or that institutional controls exist restricting future land use at the FEMP. An industrial or recreational land use scenario is plausible with continued Federal ownership or institutional controls. The baseline risk assessment will consider a groundskeeper receptor

(plausible under an industrial or recreational land use scenario), recreational receptors (plausible under a recreational land use scenario), the off-property farmer and child (at several locations around the FEMP), and a Great Miami River user in an effort to evaluate risks associated with a future land-use scenario with Federal ownership or institutional controls. It is assumed that a vegetative cover (85 percent) consistent with the surrounding rural/agricultural setting exists. It is also assumed that the storm water retention basins that are currently part of the surface water drainage system no longer exist or that the expected effective lifetime of the basins has been exceeded and the basins are no longer effectively collecting and controlling surface water runoff. Additionally, it is assumed that the South Plume Recovery Well System is no longer in operation. Thus, the source term conditions for the future land-use scenarios differ from the source term conditions assumed for the current land-use scenarios (i.e., the storm water retention basins remain in place and the South Plume Recovery Well System are operational under the current land-use scenarios). A description of the risk evaluation areas used to represent future land use conditions is given in Section A.3.2. The receptor exposure scenarios included in the Operable Unit 5 conceptual model include:

- Off-Property Farmer and Child Receptors - This exposure scenario assumes that a farm family lives immediately adjacent to the FEMP property fenceline or at a point location close to the FEMP. Three additional exposure point locations, to the six areas considered for the same receptors under current land use, were evaluated. The additional locations are: well 2071, 2119, and a well located near (due east of FEMP; immediately west of GMR) the Great Miami River (Figure 3-6). Exposure routes for these receptors are the same as those specified for the same receptor under the current land use scenario without access controls. It is assumed that the off-property farmer and child have the use of potential on-site grazing areas previously unavailable due to DOE land-use restrictions.

- Recreational Receptors - Because active DOE manufacturing facilities no longer exist, it is assumed that the study area is attractive and accessible to the public as a park. Because recreational use of a park may vary depending on the location and type of park, three hypothetical scenarios are used to demonstrate a tiered-approach for evaluating the potential for risk from limited exposure to site media. These recreational scenarios include:

  - Scenario A - Recreational use associated with a wildlife reserve.

  - Scenario B - Recreational use associated with an "undeveloped" neighborhood park with open space that allows limited recreational opportunities.

  - Scenario C - Recreational use associated with a "developed" neighborhood park with the construction of playgrounds and ball fields that provide the maximum opportunity for recreation.

  The range of potential exposures and risks from the Scenarios A through C is assumed to bound the potential for exposure to occur from recreational land use, from least

(Scenario A) to highest (Scenario C) potential for exposure. An overview of the proposed recreation scenarios is provided below.

Scenario A - Wildlife Reserve

Scenario A was selected to evaluate the potential for risk to human health from release of all or portions of the site for a wildlife reserve. Under this scenario, there would be no rest room facilities and no developed recreational facilities with the exception of possibly the accommodation of hiking or walking trails. The activities for this scenario include hiking, bird-watching and viewing other wildlife, or an area for adults to walk their pets. The intent of this environmental site setting is to minimize disturbance for wildlife species. Activities such as hiking and wildlife viewing in a natural setting would be done primarily by older teenage children (age 13 to 18) and adults. Wading in Paddys Run by a youth (age 7 to 18) is also evaluated. Because there are no rest room facilities or developed playgrounds or ball fields, the type of recreation offered by this scenario is assumed to be less attractive for a young child, adolescent (age 7 to 12), or senior adult.

Scenario B - Undeveloped Park with Limited Facilities

Scenario B was selected to evaluate the potential for risk to human health from the release of all or portions of the site for a neighborhood park with limited facilities. Under this scenario, rest room facilities and developed recreational facilities are not available. Walking trails, open spaces or grassy fields for ball playing, picnic tables and benches for sitting are available. The activities for this scenario include the same as those specified for Scenario A (i.e., hiking, bird-watching, and viewing other wildlife). In addition, activities such as ball playing, picnicking, dirt-bike riding, and possibly wading in Paddys Run (by a youth) are possible. Because the environmental setting is assumed to be more urban (i.e., a neighborhood park) than rural (i.e., a Wildlife Reserve), the undeveloped park is assumed to be more accessible to the youth receptor. Also, the types of recreation offered by this scenario are assumed to be more attractive for a youth and less attractive for an adult receptor than was assumed for Scenario A.

Scenario C - Developed Park with Recreational Facilities

Scenario C was selected to evaluate the potential for risk to human health from the release of all or portions of the site for a neighborhood park with developed recreational facilities. Under this scenario, rest rooms are available. The developed recreational facilities including playgrounds, ball fields with organized sport teams, and picnic facilities. These developments attract visitors and encourage greater family use of the site than was assumed for Scenario A and B. Exposure frequency and duration for receptors are predicted to increase over that assumed for Scenario A or B.

Since these particular scenarios are intended to model exposure from recreational use, the receptor in each scenario was assumed to have an exposure duration lasting an entire lifetime, with varying levels of exposure occurring with each age group. The age groups considered include a child (age 0-6), a youth (age 7-18), an adult (age 19-55), and a senior adult (age 56-70). Exposure routes evaluated under each of the three recreational scenarios include:

- Inhalation of fugitive dusts, volatiles, and gases

- Incidental ingestion of, direct radiation exposure from, and dermal contact with contaminated soil and sediment

- Incidental ingestion of and dermal contact with on-site surface water and the surface water of Paddys Run

The groundskeeper and user of the Great Miami River water are also evaluated under this land use scenario. The exposure routes to these receptors are the same as those listed for the identical receptors listed under the current land use scenarios, although risks to these receptors will reflect future conditions. The quantitative assessment of exposure to critical subpopulations evaluated under the current land use scenario demonstrated that potential risks were insignificant (see Section A.5.3.11). Therefore, critical subpopulations were not evaluated under the future land use scenario.

A.3.2.4.4 Future Land Use Without Access Controls (Agricultural)

The future land-use scenario assumes that no access/institutional controls are in place and includes exposure routes that require development time such as establishing a home and farm operations on property. The source term conditions evaluated for this scenario assume that a 50 percent vegetative covering is present (to represent farming), and that subsurface soil (i.e., soil more than 1.5 feet below ground surface) have been excavated in certain contaminated areas as the result of construction of a dwelling with a basement. The receptor exposure scenarios included in the Operable Unit 5 conceptual model include:

- The RME On-Property Farmer Receptor - This exposure assumes that a farmer resides on the property and conducts agricultural activities. Typical activities may include food and feed production, livestock production, and general farm work. Exposure routes include:

  - Inhalation of fugitive dust, volatiles, and gases

  - Ingestion of groundwater (separate evaluations for groundwater from the Great Miami Aquifer and for perched water)

  - Dermal contact and inhalation while using groundwater in the home

  - Consumption of foodstuffs grown on the property, including vegetables, meat, and milk

  - Incidental ingestion of, external radiation from, and dermal contact with soil

- The CT On-Property Resident Farmer Receptor - This exposure assumes that a farmer resides on the property and conducts agricultural activities. This exposure is similar to the RME

on-property resident farmer with modifications of exposure parameter values to more closely reflect values typical of the CT of exposure. Although the intent is to estimate an average exposure scenario, use of one or more upper-bound exposure parameters, uncertainty about the degree to which the CT parameters approximate average conditions, and use of the upper confidence limit (UCL) on the mean as the representative concentration for exposure assessment, compound to result in an exposure estimate somewhat greater than average. Exposure routes for this receptor include those listed for the RME on-property resident farmer receptor, excluding ingestion of perched groundwater.

- On-Property Resident Child Receptor - This exposure is similar to the RME on-property resident farmer with modifications of exposure parameter values to reflect values typical of a child. The exposure routes for this receptor include those listed for the RME on-property resident farmer. Ingestion of perched groundwater is excluded.

- Construction Worker (Home Builder) - This exposure evaluates a construction worker (or a farmer building his/her own house) digging a basement and constructing a building. This receptor would be exposed to deeper soils (i.e., deeper than 1.5 feet below ground surface) than other receptors. Exposure routes include:

  - Inhalation of particulates, volatiles, and gases
  - Incidental ingestion of/dermal contact with/external radiation from soil.

The off-property farmer and child (evaluated at several fenceline and point locations surrounding the FEMP), and an user of Great Miami River water, are also plausible receptors for the future land use without Federal ownership/institutional controls. These receptors will have the same exposure routes as those predicted for the future land use with Federal ownership/institutional controls. However, risks to these receptors will reflect a 50 percent vegetative covering of the FEMP property , which reflects agricultural use of the site, in contrast to 85 percent vegetative covering assumed under future land use with Federal ownership/institutional controls.

A.3.2.5 Summary of Selected Exposure Routes

Table A.3-1 presents a summary of the potential exposure routes under the current and future land-use scenarios that will be carried through the quantitative risk assessment for each identified receptor. These exposure routes are discussed in greater detail in Section 5.0 of the (Draft) Risk Assessment Work Plan Addendum (DOE 1992) and Supplemental Guidance to the Risk Assessment Work Plan Addendum, June 1992 (DOE, 1994). Table A.3-1 lists exposure routes for each receptor presented in the conceptual model in Figures A.3-1 and A.3-2.

A.3.3 EXPOSURE POINT CONCENTRATIONS

The exposure point concentration is the concentration of a contaminant in an exposure medium that may be contacted by a real or hypothetical receptor. Determination of the exposure point concentration depends on several factors, such as:

- Availability of validated data for CPCs
- Amount of data available to perform statistical analysis for a particular dataset
- Background concentrations not attributed to the site
- Location of the potential receptor.

For the evaluation of current (baseline) land use/site conditions, exposure concentrations for Operable Unit 5 are determined using available analytical data or predicted using air transport and models (Table A.3-2). To be consistent with the concept of the RME scenario, an estimate of the highest exposure that can reasonably be expected to occur requires a reasonable maximum estimate of the concentration of each contaminant in each exposure medium. A detailed discussion of the calculation of the reasonable maximum estimate concentration (the representative concentration) is presented in Section A.2.

For the evaluation of future land use/site conditions, exposures to soil are based on measured concentrations. Fate and transport models presented in Section 5.0 of the Operable Unit 5 RI Report were used to predict exposure point concentrations for future exposures to groundwater, surface water, sediment, and air. In addition, secular equilibrium is assumed for series radionuclides. The future on-property receptors are evaluated using an area-weighted average concentrations to represent exposure concentrations associated with the soil in the former production area (an area-weighted concentration from current risk evaluation areas 1 through 4) and the northeast area of the site (area-weighted concentration from current risk evaluation Areas 5-7).

A.3.3.1 Exposure Point Concentrations of Soil

Exposure point concentrations for the soil exposure pathways are the representative concentrations determined from measured surface soil data. Tables A.3-3 through A.3-5 present both CPCs and representative concentrations for soil in FEMP risk areas 1 through 10, the four fenceline areas, and the four grazing areas and the northeast and southeast corner of the FEMP. Tables A.3-6 and A.3-7 present exposure point concentrations for surface soil for future land use. These concentrations for CPCs in areas evaluated under current land use (or a combination of these areas) were used to determine potential risks

to both current and potential future on-site receptors such as the groundskeeper, the visitor, the trespassing youth, the exploring youth, the expanded trespasser, the home builder, and the future on-property resident farmer. Table A.3-8 presents exposure point concentrations for subsurface soil for future land use.

A.3.3.2 Exposure Point Concentrations of Air

Airborne concentrations of contaminants from surface soil across Operable Unit 5 were modeled for both on- and off-property locations. The model employed to predict the exposure point concentrations assumes mass loading (fugitive dust emissions) from surface soil and gas emission (radon) to the air from contaminated soil across the FEMP. Only the PM-10 fraction was modeled. Actual deposition rates were not modeled for the Operable Unit 5 area, but a default deposition factor was used in the food chain calculations (EPA 1991d). The model and parameters for air dispersion are described in Section 5.0 of the Operable Unit 5 RI Report.

Tables A.3-9 to A.3-12 present the on- and off-property air concentrations predicted by the air dispersion model. Tables A.3-116 presents modeled air concentrations at locations of critical subpopulations offsite. The modeling results presented in these tables predict radon-222, a noble gas decay product from the uranium decay series, at the following levels as indicated:

pCi/m³		
0.1 ≤ 1.0	>1 ≤ 10	>10
Southern boundary	Grazing Area 1	Northeast area
	Grazing Area 2	Production area (Areas 1-4)
	Grazing Area 4	Grazing Area 3
	Northern boundary	Area 3 (Production Area)
	Western boundary	Area 4 (Production Area)
	Eastern boundary	Area 5 (Fire Training Area)
	Area 1 (Production Area)	Area 7 (Northeast Boundary
	Area 2 (Production Area)	
	Area 6 (Sewage Treatment Plant)	
	Area 8 (Northwest boundary)	
	Area 9 (Waste Pit)	

pCi/m³		
0.1 ≤ 1.0	>1 ≤ 10	>10
	Area 10 (Southeast, Southwest and Shooting Range)	

The elevated levels of radon arise from the decay of uranium decay products in soil.

A.3.3.3 Exposure Point Concentrations for Groundwater

The focus of the Operable Unit 5 baseline risk assessment is the evaluation of current or future risks associated with exposure to contaminants in groundwater underlying and downgradient of the FEMP. Operable Unit 5 is responsible for the evaluation of perched water outside of other source term operable unit boundaries (i.e., Operable Units 1, 2, and 4). The contamination observed in the Great Miami Aquifer is also evaluated in the Operable Unit 5 risk assessment. As discussed in Section 4.0 of the Operable Unit 5 RI Report, site-related contaminants (e.g., uranium-238) have been detected in off-property monitoring wells installed to monitor water quality in the Great Miami Aquifer. A few off-property receptors (private well owners) are currently supplied bottled water by the DOE because of the off-property migration of the uranium contaminant plume. Because of the demonstrated off-property migration of contaminants, the groundwater exposure pathways are the most critical pathways evaluated in the Operable Unit 5 baseline risk assessment.

Representative concentrations of CPCs detected in the Great Miami Aquifer in wells located along the northern, southern, western, and eastern boundary, and wells at the northeast and southeast corners of the site are presented in Table A.3-13. Table A.3-13 also presents the representative concentrations calculated for the off-property monitoring wells in the South Plume. Analytical data available for the following wells were used to determine the representative concentration/activities of CPCs:

EXPOSURE POINT LOCATIONS	RI/FS MONITORING WELLS
Northern Boundary Wells =	2066, 2679, 2731, 3066, 3679
Eastern Boundary Wells:	2754, 2424, 2051, 2426, 2429, 2431, 2432, 2733, 3424, 3425, 3051, 31217, 3426, 3429, 4424, 3431, 3432, 3733, 41217, 4425, 4432

Western Boundary Wells =	2050, 2043, 2383, 2384, 2044, 2104, 3043, 3044
South Plume Wells (correspond to Uranium Plume)	Wells at the southern boundary of the site and between the southern boundary of site and Paddys Run Road Industrial Site.
The Southeast corner of the FEMP =	Boring Zone 3-3, 3-9, 3-10, 3-11, 3-12, 3-19

Well locations are found on the maps and figures referenced in Section 4.

The groundwater contaminant concentrations in these areas are evaluated to demonstrate risks incurred by potential receptors (e.g., private well owners) relying on the Great Miami Aquifer as a domestic water supply source (i.e., the off-property resident farmer envisioned for the current land-use scenario). The eastern fenceline and south plume areas present predominant downwind and downgradient directions for air and groundwater contaminants, respectively. To the event available, the representative concentration/ activity determined for CPCs in groundwater are based on 1992/1993 data. (For calculation purposes, the maximum available concentration of a CPC was selected to represent a well.) If analytical data were not available for a CPC in the 1992/1993 time frame, the maximum concentration detected in the pre-1992/1993 time frame was used to represent the contraction for a well which was then combined with data from other wells to calculate the representative concentration for an area.

Representative concentrations of CPCs detected in the perched water underlying the former production area are presented in Table A.3-14. These concentrations will be evaluated to demonstrate risks incurred by a hypothetical individual using the perched groundwater as a domestic water supply source (i.e., the on-property resident farmer envisioned under the future land-use scenario - without Federal ownership). The perched water underlying the former production area was selected for evaluation because the uranium contamination in the perched water exceeds that observed in other Operable Unit 5 areas. The representative concentrations presented in Table A.3-14 were calculated using maximum CPC concentrations detected in groundwater samples collected from the former production area monitoring wells in the 1992/1993 time frame. If analytical data were not available for a CPC in the 1992/1993 time frame, the maximum concentration detected in the pre-1992/1993 time frame was used for a well to calculate the representative concentration.

Future exposure point concentrations for groundwater in the Great Miami Aquifer are determined from the results of geochemical and groundwater transport modeling, as described in Section 5.0 of the

Operable Unit 5 RI Report. The geochemical and groundwater models and parameters are designed to provide high confidence that the risks attributed to the transport of contaminants in the groundwater will not be greater than the calculated values. These results are conservative and are not likely to actually occur. The determination of future exposure point concentrations in the Great Miami Aquifer focuses on those constituents that have the potential to contribute significantly to the risks associated with groundwater exposures. CPCs were selected as described in Appendix Q.

Under the future land-use scenario, seven on-property RME locations were evaluated in the Operable Unit 5 baseline risk assessment. The on-property locations are the former production area (Areas 1-4), Northwest area (Area 8), Northeast area (Areas 5-7), Southeast Area (the eastern half of Area 10), the Southwest area (western half of Area 10), shooting range (the northeast corner of area 10), and the Waste pit area (Area 9) (Table A.3-14, Figure A.3-5).

Table A.3-15 presents modeled exposure point concentrations for groundwater (in the Great Miami Aquifer) at the four boundaries of the FEMP, the northeast and southeast receptor locations, and the three well locations to the east of the FEMP. The values will be used to evaluate risks to the off-property resident under the future land-use scenario. Modeled exposure point concentrations for selected off-property locations (Figure A.3-6) are presented in Appendix Q and discussed in Section 5.0 of the RI Report.

In many of the unfiltered groundwater samples, the metals concentrations detected appear to reflect turbidity in unfiltered samples. Conservatively, these analytes are evaluated in the baseline risk assessment. Several organic CPCs (principally solvents such as 1,1,1-trichloroethane) were also detected in RI/FS groundwater samples and are evaluated in the baseline risk assessment.

A.3.3.4 Exposure Point Concentrations in Surface Water and Sediment

Exposure point concentrations for surface water and sediment of the Great Miami River, Paddys Run, the SSOD, and the pilot plant drainage ditch, are presented in Tables A.3-16 through A.3-17. The representative concentrations developed for these media are evaluated as part of the assessment of potential current/future risks to the off-property user of the Great Miami River, the trespassing youth, the exploring youth, and the recreational receptors. The representative concentrations are based on analytical data available for the following surface water and sediment sampling locations.

Exposure Point Location	Sampling Point Locations
Pilot Plant Drainage Ditch	ASIT-010, PP-DD-01, PP-DD-02, Seep 1, Seep 2, Seep 3, Seep 4, Seep 5, Seep 6, Seep 7, Seep 8, Seep 10, PP-DD-03, PP-DD-04
Paddys Run - Onsite	W-10, W-7, SWS-1, SWS-2, SWS-3, SWS-6, W-11, SWS-5, IFP-SW-03, IFP-SW-04, SWS-4, W-9
Paddys Run - Offsite	SWS-9, W-13, SWS-8, W-14, W-8, SWS-7, W-12
Great Miami River at Confluence with Paddys Run	GMR4, W4, GMR-4W, GMR-4W1/4
Great Miami River Between Outfall Line and Confluence	W-3, GMR-3, GMR-5, ZI-01, ZI-02, ZI-03, ZI-04, ZI-05, W-3E, ZI-06J, ZI-06I, ZI-06H, ZI-06G, ZI-06F, ZI-06, ZI-06E, ZI-06D, ZI-06C, ZI-06B, ZI-06A
Storm Sewer Outfall Ditch	ASIT-003, ASIT-002, ASIT-001 ASIT-006, ASIT-007, AFP-SW-02
Northern Area Drainage Ditches	FT-1, SWL-SW-01, ASIT-021, SWL-SD-02, ASIT-022, ASIT-019, ASIT-020, ASIT-018

Table A.3-16 presents current exposure point concentrations for surface water. Measured concentrations available for the pilot plant drainage ditch (Study Area 9) are used to evaluate receptors (e.g., the trespassing youth, the off-property consumer of animal products) potentially exposed to CPCs detected in seep and surface water samples collected along the drainage ditch. The maximum of representative concentrations/activities for Paddys Run and the SSOD is used to evaluate potential exposures to the surface water intermittently present in these drainages (Study Area 10). Measured concentrations/ activities reported sampling locations between the outfall line and the confluence with Paddys Run and below the confluence with Paddys Run were used for assessing risk to the Great Miami River user receptor.

Table A.3-18 presents future exposure point concentrations for surface water. The concentrations presented for Waste Pit Area are measured data for the pilot plant drainage ditch. The values presented for Southwest are modeled values (Appendix Q) for Paddys Run. For the Southwest Area, exposure point concentrations were based on measured values for SSOD. CPC concentrations were modeled for the Great Miami River at the confluence with Paddys Run.

The current exposure point concentrations for sediment are presented in Table A.3-17. The values presented are based on measured data available in the RI/FS database. The results of the analysis of sediment samples collected in the northern drainage ditches (Area 4), the pilot plant drainage ditch

(Area 9), and the SSOD and Paddys Run (Study Area 10) are used to evaluate exposures to the trespassing or exploring youth under a current land-use scenario. The value presented for Study Area 10 is the maximum of available data for the SSOD and Paddys Run.

Table A.3-19 presents future exposure point concentrations for sediment within the FEMP property. It is assumed that concentrations derived from current data (Table A.3-17) reflect future conditions for Study Areas 4. An average of the modeled concentrations for Paddys Run (Appendix Q, Paddys Run cross-section CC and DD), is used as the representative concentration for Waste Pit Area. An average of the modeled concentrations for Paddys Run (Appendix Q, cross-sections DD and EE), and the SSOD is used for the representative concentration for Southwest Area, and the modeled value for SSOD was used for Southeast Area.

A.3.4 QUANTIFICATION OF EXPOSURE

Estimates of exposure are based on the constituent concentration at the exposure points (described in Section A.3.3) and scenario-specific assumptions and intake parameters. The models and equations used to quantify intakes are described in the (Draft) Risk Assessment Work Plan Addendum (DOE 1994) and have been obtained from EPA risk assessment guidance (EPA 1989a). In cases where models were not available from EPA, models developed by the U.S. Nuclear Regulatory Commission (NRC) Regulatory Guide 1.109 (NRC 1977) were used.

The method used to quantify chronic exposures at the FEMP employs the concept of the RME for each of the four land use/source term scenario combinations. The RME is the maximum exposure reasonably expected to occur at the site (EPA 1989a). If the RME is determined to be acceptable, then it is likely that all other lesser exposures at the site will also be acceptable. Exposures for the on-property resident are also evaluated using the CT analysis. This analysis represents exposures under more typical situations and exposure parameters are selected accordingly.

Exposures are dependent on measured or predicted concentrations of chemicals in environmental media and local land-use practices, and both are subject to change over time. This produces a large number of possible combinations of media, receptors, exposure pathways, and concentrations.

Exposure model parameters used in the Operable Unit 5 risk assessment are presented in Tables A.3-20, A.3-21a, and A.3-21b for selected receptors under current and future land-use scenarios, respectively.

All parameters and equations are discussed in the Supplemental Guidance to the Risk Assessment Work Plan Addendum (DOE 1994) or unless noted otherwise. Current and predicted future exposure point concentrations, which are combined with receptor-specific exposure parameters, are used to calculate intakes and risks.

This section presents the equations used to quantify the magnitude of exposure expected to result from all reasonable exposure pathways at the FEMP. Exposures are quantified using a set of equations and parameters which are unique to each exposure pathway. The exposure assessment process results in calculated daily intakes expressed as milligrams of chemical per kilogram of body weight per day (mg/kg-day) for hazardous chemicals and radionuclide intakes expressed in pCi for radionuclides.

A.3.4.1 Equations Quantifying Intakes and Exposures to Soil or Sediment

Exposure routes for exposure to soils and sediments include incidental ingestion, dermal contact, and direct irradiation. Sections A.3.4.1.1 through A.3.4.1.3 present the equations used to calculate intake from these exposures.

A.3.4.1.1 Incidental Ingestion of Soil/Sediment

The estimation of intake of constituents in soil or sediment is determined using the concentration in the soil or sediment at the location of interest. Evaluation of the soil and sediment ingestion pathway is performed for adults and children. Children represent a critical subpopulation for whom these exposure pathways may be significant. EPA guidance suggests that children may be exposed through the soil ingestion pathway up to the age of 6 (EPA 1989a). It is assumed that ingestion of sediment in streambeds away from the home involves slightly older children at ages 6 through 17. Evaluation of the soil/sediment ingestion pathway is performed using the following equations (EPA 1989a):

$$(radionuclides) \quad I_{si} = (C_{si})(IR)(ED)(EF)(FI) \qquad \text{(A.3-1)}$$

$$(chemicals) \quad I_{si} = \frac{(C_{si})(IR)(CF)(FI)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-2)}$$

where:

I_{si} = intake from soil or sediment for i^{th} constituent (pCi, rad) (mg/kg-d, chem)
C_{si} = concentration of ith constituent in soil or sediment (pCi/g, rad) (mg/kg, chem)
IR = ingestion rate (g/d, rad) (g/d, chem)

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CF = conversion factor (10^{-3} kg/g, chem)
FI = fraction ingested from source being evaluated (unitless)
EF = exposure frequency (d/y)
ED = exposure duration (y)
BW = body weight (kg)
AT = averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

A.3.4.1.2 Dermal Contact

The estimation of intake of organic constituents in soil or sediment via absorption through the skin is determined using the concentration in the soil or sediment at the location evaluated. Evaluation of the dermal absorption pathway is performed for adults and children. Children represent a critical subpopulation for whom these exposure pathways may be significant. It is assumed that contact with sediment in streambeds away from the home involves slightly older children at ages 6 through 17.

The amount of a chemical taken into the body upon exposure via dermal contact with soil or sediment is referred to as an absorbed dose. Dermal absorption is calculated using Equation 7-34 (DOE 1994):

$$DAD_s = \frac{(C_{si})(CF)(SA)(AF)(ABS)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-3)}$$

where:

DAD_s = dermally absorbed dose from contact with soil (mg/kg-day)
C_{si} = concentration of ith constituent in soil or sediment (mg/kg)
SA = skin surface area available for contact (cm^2/event)
AF = skin adherence factor (mg/cm^2)
ABS = absorption factor (unitless)
CF = conversion factor; (10^{-6} kg/mg)
EF = exposure frequency (events/y)
ED = exposure duration (y)
BW = body weight (kg)
AT = averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

For most metals and hence radionuclides, dermal absorption is not a significant pathway because penetration through the skin is minimal. However, it will be necessary to evaluate dermal absorption for chemical constituents found at the site. As specified by EPA (1992), dermal contact with soil and waste will be quantitatively evaluated for dioxins, furans, PCBs, DDT, and cadmium if dermal absorption

factors (ABS) currently exist. For other organics, dermal absorption will be assessed (either qualitatively or quantitatively) using dermal absorption values obtained from the literature. The following chemical-specific dermal absorption values obtained from EPA (1992) will be used:

- Dioxins and furans — 3.0% absorbed
- PCBs — 6.0% absorbed
- DDT, DDD, DDE — 30.0% absorbed
- Cadmium — 1.0% absorbed

Other values used in this report are presented in Section A.4.0.

A.3.4.1.3 Direct Radiation Exposure from Soil/Sediment

The estimation of direct radiation exposure from soil or sediment is determined using the concentration in the soil or sediment at the location evaluated. Since the publication of the 1992 DOE FEMP Risk Assessment Work Plant Addendum, EPA has published a new set of slope factors (EPA 1992b). Changes in these slope factors require the use of a different equation than the one originally presented in DOE 1994 to calculate risks resulting from external radiation exposures from soil. The new equation is from the FEMP Revised Draft Risk Assessment Work Plan Addendum (DOE 1994):

$$D = (C_{si})(ED)(EF)(CF)\left[ET_{in}\,(1-S_i) + ET_{out}\,x\,(1-S_o)\right] \qquad \text{(A.3-4)}$$

where:

D	=	dose from exposure (pCi-yr/g)
C_s	=	concentration of ith constituent in surface soil or sediment (pCi/g)
ED	=	exposure duration (y/lifetime)
EF	=	exposure frequency (d/y)
ET_{in}	=	exposure time indoors on-site (h/d)
ET_{out}	=	exposure time outdoors on-site (h/d)
S_i	=	indoor shielding factor (0.5, from the Revised Draft Risk Assessment Work Plan Addendum, DOE, 1994)
S_o	=	outdoor shielding factor outdoors (0, assumes no shielding)
CF	=	1.142×10^{-4} y/h

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A.3.4.2 Equations Quantifying Intakes and Exposures from Water

A.3.4.2.1 Water Ingestion Pathway

A receptor can ingest water by deliberately drinking it, or by accidentally swallowing water while swimming or wading. An estimate of intake from ingesting drinking water is calculated using the following equations (EPA 1989a):

$$(radionuclides)\quad I_{wi} = (C_{wi})(IR)(ED)(EF) \qquad \text{(A.3-5)}$$

$$(chemicals)\quad I_{wi} = \frac{(C_{wi})(IR)(ED)(EF)}{(BW)(AT)} \qquad \text{(A.3-6)}$$

where:

I_{wi}	=	intake of ith constituent from drinking water (pci, rad) (mg/kg-d, chem)
C_{wi}	=	concentration of ith constituent in water (pCi/L), rad) (mg/L, chem)
IR	=	ingestion rate (L/d)
EF	=	exposure frequency (d/y)
ED	=	exposure duration (y)
BW	=	body weight (kg)
AT	=	averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y [EPA, 1991c]); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

Intake from incidental ingestion of surface water while swimming or wading is quantified using the following equations (EPA 1989a):

$$(radionuclides)\quad I = (C_{ws})(IR)(ET)(EF)(ED) \qquad \text{(A.3-7)}$$

$$(chemicals)\quad I = \frac{(C_{ws})(IR)(ET)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-8)}$$

I	=	intake from water while swimming or wading (pCi) (mg/kg-day)
C_{ws}	=	concentration in surface water (pCi/L, radionuclide; mg/L, chemical)
IR	=	ingestion rate (0.05 L/hr)
ET	=	exposure time (hr/event)
EF	=	exposure frequency (events/yr)
ED	=	exposure duration (yr)
BW	=	body weight (kg)
AT	=	averaging time (days); for noncarcinogens, AT equals (ED)(365 days/yr); for carcinogens, AT equals (70-year lifetime)(365 days/yr)

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A.3.4.2.2 Volatiles Released by Showering and Other Household Water Uses

The amount of a chemical taken into the body via exposure to volatilization of chemicals from showering is evaluated using the concentration of a chemical in the water source, as suggested by EPA (1992a, 1992b). Intake from the volatilization of chemicals in household water is calculated using the Andelman model (EPA 1991f):

$$(radionuclides)\quad I_{wai} = (C_{wi})(K)(IR_i)(EF)(ED) \qquad \text{(A.3-9)}$$

$$(chemicals)\quad I_{wai} = \frac{(C_{wi})(K)(IR_i)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-10)}$$

where:

I_{wai}	=	intake of volatile in water from inhalation (pCi, rad) (mg/kg-day, chem)
C_{wi}	=	concentration of ith constituent in water (pCi/L, rad) (mg/L, chem)
K	=	volatilization factor (0.5 L/m^3)
IR_i	=	indoor inhalation rate (m^3/d)
EF	=	exposure frequency (d/y)
ED	=	exposure duration (y)
BW	=	body weight (kg)
AT	=	averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y [EPA, 1991c]); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

For most metals and, hence, most radionuclides at the FEMP, volatilization is not a significant pathway because they do not vaporize at room temperature. The notable exceptions are the isotopes of radon.

A.3.4.2.3 Inhalation of Indoor Concentrations of Radon

Intake from inhalation of radon within on-site structures is quantified using the following equation:

$$I = (C_{Ra})(IR)(EF)(ED) \qquad \text{(A.3-11)}$$

where

I	=	intake (pCi)
C_{Ra}	=	concentration of indoor radon (pCi/m^3)
IR	=	indoor inhalation rate (m^3/day)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration

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A.3.4.2.4 Dermal Contact While Bathing or Swimming

The estimation of intake of constituents in water via absorption through the skin is determined using the concentration of a chemical in the water source evaluated. Evaluation of the dermal absorption pathway is performed for both adults and children. The amount of a chemical taken in the body upon exposure via dermal contact is referred to as an absorbed dose. The absorbed dose is calculated using the equations presented in Dermal Exposure Assessment: Principle and Applications (EPA 1992e):

$$DAD\ (mg/kg\text{-}day) = \frac{(DA_{event})(EF)(ED)(SA)}{(BW)(AT)} \qquad \text{(A.3-12)}$$

where:

DAD	=	dermally absorbed dose
DA_{event}	=	absorbed dose per event (mg/cm^2-event)
SA	=	surface area (cm^2)
EF	=	exposure frequency (d/y)
ED	=	exposure duration (y)
BW	=	body weight (kg)
AT	=	averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

DA_{event} can be calculated as:

$$DA_{event} = (C_v)(2)(K_p)(CF)\sqrt{\frac{(6)(\tau)(ET)}{\pi}} \text{ if } ET < t*, \text{ or} \qquad \text{(A.3-13)}$$

$$DA_{event} = (C_v)(K_p)(CF)\left[\frac{ET}{1+B} + 2\tau\left[\frac{1+3B}{1+B}\right]\right] \text{ if } ET > t* \qquad \text{(A.3-14)}$$

where:

C_v	=	concentration in the vehicle (mg/L)
K_p	=	permeability constant (cm/h)
τ	=	lag time (h)
B	=	partitioning coefficient (unitless)
ET	=	time of event (h)
π	=	Pi (3.14)
t*	=	time to equilibrium conditions (hr)
CF	=	conversion factor (L/cm^3)

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These values may be obtained from the Dermal Exposure Assessment: Principles and Applications, (EPA 1992e).

For showering the vehicle is domestic water, and for swimming the vehicle is river water. In either case, C_v equals concentration in the water (C_w). For most metals and, hence, most radionuclides in Operable Unit 5, dermal absorption is not a significant pathway because penetration through the skin is minimal.

A.3.4.3 Equations Quantifying Intakes and Exposures from Inhalation

The amount of a constituent a receptor takes in as a result of respiration is determined using the concentration of a chemical in the air. Equations 7-5 and 7-6 from DOE (1994) are used to quantify intake from the inhalation pathway:

$$(radionuclides)\quad I_{ai} = (C_{ai})(IR)(ET)(EF)(ED) \qquad \text{(A.3-15)}$$

$$(chemicals)\quad I_{ai} = \frac{(C_{ai})(IR)(ET)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-16)}$$

where:

I_{ai}	=	intake from inhalation (pCi, rad) (mg/kg-d, chemical)
C_{ai}	=	concentration of ith constituent in air (pCi/m^3, rad) (mg/m^3, chemical)
IR	=	inhalation rate (m^3/h)
ET	=	exposure time (h/d)
EF	=	exposure frequency (d/y)
ED	=	exposure duration (y)
BW	=	body weight (kg); and
AT	=	averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)

A.3.4.4 Equations Quantifying Intakes and Exposures from Food

Consumption of contaminated food may contribute a measurable portion of the chemical intake experienced by a receptor from Operable Unit 5 at some time in the future. The food sources evaluated in this assessment include vegetables and fruit, beef, dairy products, and fish.

Under current conditions humans are not expected to directly ingest vegetation growing within the operable unit. However, transport through the food chain to humans is possible through the cattle grazing

in the operable unit. In the future, both animals and crops could be grown on the site. These mechanisms could allow constituents to find their way into the human food chain.

If measured concentrations in food are not available, constituent concentrations in food can be estimated using the equations presented below. These methodologies are taken from DOE (1994).

A.3.4.4.1 Vegetable and Fruit Ingestion

The amount of a constituent a receptor takes in as a result of consuming vegetables and fruit is determined using the concentration of a chemical in the edible portions of the plants. The concentration of constituents in vegetables and fruit attributable to irrigation is estimated using Equation 7-3 from DOE (1994):

$$C_{wvi} = C_w d_w \left| \frac{r_w\left(1-e^{-\lambda_w t_e}\right)}{Y\lambda_w} + \frac{f_w B_{iv(n)}\left(1-e^{-\lambda_{di} t_{bw}}\right)}{\rho\lambda_{di}} \right| e^{-\lambda_{ri} t_h} \qquad \text{(A.3-17)}$$

where:

C_{wvi}	=	concentration of ith constituent in vegetation as a result of irrigating plants with contaminated water (pCi/g, rad) (mg/kg, chem)
C_w	=	concentration of ith constituent in irrigation water (pCi/L, radionuclide; mg/L, chemical)
λ_w	=	effective depletion constant of ith constituent on the surface plants also known as the weathering removal rate (h^{-1})
λ_{ri}	=	radioactive or chemical decay constant of ith constituent in soil (h^{-1})
λ_{Li}	=	leaching rate of ith constituent in root zone (hr^{-1})
λ_{di}	=	effective depletion constant for i[th] constituent from root zone of soil
	=	$\lambda_{ri} + \lambda_{Li}$
$B_{iv(n)}$	=	dry soil to wet plant partitioning coefficient of ith constituent (C_{iv}/C_s)
$B_{iv(1)}$	=	biotransfer factor for forage and feed for livestock consumption
$B_{iv(2)}$	=	biotransfer factor for food crops for human consumption
d_w	=	irrigation deposition rate (L/m^2-hr)
f_w	=	fraction of year plant is irrigated (unitless)
ρ	=	effective dry surface density of the soil (g/m^2, rad) (kg/m^2, chem)
r_w	=	fraction of water borne material retained on plant surface (unitless)
t	=	growing season (h)
t_{bw}	=	duration of irrigation use (h)
t_h	=	duration of period between harvest and consumption (h)
Y	=	agricultural yield (g/m^2, rad) (kg/m^2, chem)
t_e	=	growing season (h)

Equation 7-3 was adapted from NRC (1977) with modifications based on Baes et al. (1984) and Baes and Sharp (1983). Parameter values that are appropriate for the FEMP site for this model are presented in Table A.3-22. Biotransfer factors (i.e., B_v and B_r) for constituents of concern are provided in Table A.3-23. B_v is used to calculate $B_{iv(1)}$, which applies to all vegetative portions of a plant, appropriate for consumption by livestock. B_r is used to calculate $B_{iv(2)}$, which applies primarily to the nonvegetative (i.e., reproductive) portions of the plants, including the seeds, grains, and fruits, which are appropriate for evaluating principle portions of plants consumed by humans (Baes et al. 1984). These biotransfer factors were obtained from Baes et. al (1984) for inorganics and radionuclides and must be converted from a dry-weight (soil) to dry-weight (plant) basis to a dry-weight (soil) to wet-weight (plant) basis by using the appropriate conversion factor (CF). Baes et. al (1984) presents a weighted average conversion factor of 0.428, considering the relative importance of various crop types grown throughout the United States and their appropriate CFs (i.e., leafy vegetables (CF = 1), protected crops (CF = 0.222), exposed produce (CF = 0.126) and grains (CF = 0.888). Biotransfer factors for forage and feed crops for livestock consumption (from B_v to $B_{iv(1)}$) need not be converted since the appropriate conversion factor approaches 1 (Baes et al. 1984).

For organics, if a transfer factor is not readily available, for a particular compound, they will be estimated based on the chemical's octanol-water portioning coefficient (K_{ow}) with the equation (Travis and Arms 1988):

$$\log B_r = \log B_v = 1.588 - 0.578 \log K_{ow} \qquad \text{(A.3-18)}$$

The soil depletion coefficient is calculated by

$$\lambda_{di} = \lambda_{ri} + \lambda_{Li} \qquad \text{(A.3-19)}$$

where the leaching coefficient (λ_{Li}) is calculated using the relationship (Baes and Sharp, 1983) (Equation 7-5) in DOE (1994).

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$$\lambda_{Li} = \frac{V_w}{z\,\theta\left[1 + \sigma\frac{K_d}{\theta}\right]} \qquad \text{(A.3-20)}$$

and where:

λ_{Li} = leach rate for i[th] constituent in root zone (h^{-1})
V_w = percolation rate (0.00177 cm/hr)
z = depth of root zone (15 cm)
σ = density of soil in root zone (nominally 1.5 g/cm^3)
K_d = chemical-specific water to soil partitioning coefficient (cm^3/g)
θ = moisture fraction of soil in root zone (0.17)

Leaching coefficients for the FEMP site are presented in Table A.3-23.

Vegetables Contaminated by Aerial Deposition

Eating vegetables and fruit subject to aerial deposition by dust can contribute to the total intake of a constituent by humans. If measured concentrations in the plants are not available (e.g., future exposures), this concentration is estimated using Equation 7-6 from DOE (1994). The equation used to estimate constituent concentrations in vegetation is:

$$C_{avi} = C_a d_d \left[\frac{r_d\left(1-e^{-\lambda_w t_c}\right)}{Y\lambda_w} + \frac{f_d B_{iv(n)}\left(1-e^{-\lambda_{di} t_{bd}}\right)}{\rho\lambda_{di}}\right] e^{-\lambda_{ri} t_h} \qquad \text{(A.3-21)}$$

where:

C_{avi} = concentration of the ith constituent in vegetables and fruit exposed to aerial deposition (pCi/g, rad)(mg/kg, chem)
C_a = concentration of ith constituent in air (pCi/m^3, radionuclide; mg/m^3, chem)
λ_w = effective depletion constant of ith constituent on the surface plants, also known as the weathering removal rate (h^{-1})
λ_{di} = effective depletion constant for the ith constituent from root zone of soil
λ_{ri} = radioactive or chemical decay constant of ith constituent (h^{-1})
$B_{iv(n)}$ = dry soil to wet plant partitioning coefficient of ith constituent (C_{iv}/C_s)
d_d = aerial deposition velocity (m/hr)
f_d = fraction of year plant is exposed to particulate deposition (unitless)
r_d = fraction of airborne material retained on plant surface (unitless)
t_c = growing season (h)
t_{bd} = duration soil is exposed to airborne emissions (h)
t_h = duration of period between harvest and consumption (h); and

Y = agricultural yield (g/m^2, rad) (kg/m^2, chem)
ρ = effective dry surface soil density (g/m^2, rad) (kg/m^2, chem)

Parameter values that are appropriate for the FEMP site for this model are presented in Table A.3-22.

In addition to exposure to contaminated irrigation water and dust, vegetables, livestock feed and forage may become contaminated by root uptake from contaminated soil or waste. A contribution via this pathway is already accounted for in the irrigation and particulate deposition models. The constituent concentration in the plant from root uptake of constituents already in the soil is calculated with Equation 7-7 from DOE (1994):

$$C_{svi} = (C_s)(B_{iv(2)})(e^{-\lambda_{ri} t_h}) \qquad \text{(A.3-29)}$$

where:

C_{svi} = concentration of ith constituent in plants as a result of root uptake from contaminated soil (pCi/kg) (mg/kg)
C_s = concentration of ith constituent in dry soil at harvest time (pCi/kg) (mg/kg)
λ_{ri} = radioactive or chemical decay constant for i^{th} constituent (hr^{-1})
t_h = duration between harvest and consumption

The total concentration in vegetation (C_{iv}) is calculated by adding the contributions from water, air and soil:

$$C_{iv} = C_{wvi} + C_{avi} + C_{svi} \qquad \text{(A.3-22)}$$

Once the concentration in vegetation has been determined, intake can be calculated using Equations 7-36 and 7-37 from DOE (1994):

$$(radionuclides)\quad I_{iv} = (C_{iv})(IR)(FI)(FT)(EF)(ED) \qquad \text{(A.3-23)}$$

$$(chemicals)\quad I_{iv} = \frac{(C_{iv})(CF)(IR)(FI)(FT)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-24)}$$

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where:

I_{iv}	=	intake from vegetation (pCi, rad) (mg/kg-d, chem)
C_{iv}	=	total concentration of constituent "i" in vegetation (pCi/g, rad) (mg/kg, chem)
IR	=	ingestion rate (includes fraction of vegetables and fruits produced at home) (g/d, rad) (kg/d, chem)
FI	=	fraction ingested from source (unitless).
FT	=	fraction of year homegrown produce is consumed.
EF	=	exposure frequency (d/y)
ED	=	exposure duration (y)
BW	=	body weight (kg)
AT	=	averaging time (d); for noncarcinogens, AT equals (ED) (365 d/y); for chemical carcinogens, AT equals (70 y/lifetime) (365 d/y)
CF	=	conversion factor (10^{-3} kg/g)

A.3.4.4.2 Biouptake of Constituents into Meat and Milk

Livestock have the potential for biouptake of CPCs from grazing on forage, ingesting feed, or incidentally ingesting soil. The pathways allowing livestock to contact constituents at the site include irrigation of feed; ingestion of water; aerial deposition of particulates onto forage, feed crops, and agricultural soils; and livestock ingestion of forage and feed grown on soil.

The concentration of a constituent in animal products, such as beef or milk, from ingestion of irrigated feed crops and ingestion of water is determined using the equation adapted from NRC (1977) for milk:

$$C_{iMw} = F_{iM} \left[(C_{ifw} Q_f) + (C_{iw} Q_w) \right] e^{(-\lambda_{ri} t_M)} \qquad \text{(A.3-25)}$$

and for beef:

$$C_{iBw} = F_{iB} \left[(C_{ifw} Q_f) + (C_{iw} Q_w) \right] e^{(-\lambda_{ri} t_B)} \qquad \text{(A.3-26)}$$

where:

C_{iMw}	=	concentration of ith constituent in milk (pCi/L, radionuclide; mg/L, chemical);
C_{iBw}	=	concentration of ith constituent in beef (pCi/g, radionuclide; mg/kg, chemical);
F_{iM}	=	element (stable) transfer coefficient that relates daily intake of ith constituent by cattle from water and irrigated feed to its concentration in milk (day/L);

F_{iB} = element (stable) transfer coefficient that relates daily intake of ith constituent by cattle from water and irrigated feed to its concentration in edible portions of beef (day/g, radionuclide; day/g, chemical)
C_{ifw} = concentration of ith constituent in irrigated feed exposed (pCi/g, radionuclide; mg/g, chemical)
Q_f = daily consumption rate of feed by cattle (g/day)
C_{iw} = concentration of ith constituent in irrigation water (pCi/L, radionuclide; mg/L, chemical)
Q_w = daily consumption rate of constituent water by cattle (L/day)
λ_{ri} = decay constant of ith constituent (hr^{-1})
t_M, t_B = delay time between harvest of animal product and consumption (hr)

For livestock ingesting feed or grazing on forage grown on soil or exposed to constituents from aerial deposition of particulates, the concentration of a constituent in milk is estimated by use of the equation:

$$C_{iM} = F_{iM}\left[(C_{if}\,Q_f) + (C_{ig}\,Q_g) + (C_{is}\,Q_s)\right] e^{(-\lambda_{ri}\,t_M)} \qquad \text{(A.3-27)}$$

and for beef:

$$C_{iB} = F_{iB}\left[(C_{if}\,Q_f) + (C_{ig}\,Q_g) + (C_{is}\,Q_s)\right] e^{(-\lambda_{ri}\,t_B)} \qquad \text{(A.3-28)}$$

where:

C_{iM} = concentration of ith constituent in milk (pCi/L, radionuclide; mg/L, chemical);
C_{iB} = concentration of ith constituent in beef (pCi/g, radionuclide; mg/Ig, chemical);
F_{iM} = element (stable) transfer coefficient that relates daily intake of ith constituent by cattle from feed, forage and soil to its concentration in milk (day/L)
F_{iB} = element (stable) transfer coefficient that relates daily intake of ith constituent by cattle from feed, forage and soil to its concentration in edible portion of meat (day/g, radionuclide; day/g, chemical)
C_{if} = concentration of ith constituent in feed grown in soil or exposed to aerial deposition (pCi/g, radionuclide; mg/g, chemical)
Q_f = daily consumption rate of feed by cattle (g/day)
C_{ig} = concentration of ith constituent in forage grown in soil or exposed to aerial deposition (pCi/g, radionuclide; mg/g, chemical)
Q_g = daily consumption rate of forage by cattle (g/day)
C_{is} = concentration of ith constituent in soils or soils exposed to aerial deposition (pCi/g, radionuclide; mg/g, chemical)
Q_s = daily incidental ingestion rate of soil by grazing cattle (g/day)
λ_{ri} = decay constant of ith constituent (hr^{-1})
t_M, t_B = delay time between harvest of animal product and consumption (hr)

Factors used in Equations A.3-17 and A.3-18, including the concentration of constituents in pasture land, agricultural soils used for growing feed crops, and agricultural soil exposed to aerial deposition of particulates are calculated using the equation:

$$C_{iss} = d_d \left[\frac{f_d \left(1 - e^{-\lambda_{di} t_{bd}}\right)}{\rho \ \lambda_{di}} \right] e^{-\lambda_{ri} t_h} \qquad \text{(A.3-29)}$$

Parameter values that are appropriate for the FEMP site when using this model are presented in Table A.3-22. Plant-to-milk (F_{iM}) and plant-to-beef (F_{iB}) transfer factors are presented in Table A.3-23. For inorganics and radionuclides, biotransfer factors were obtained from Baes et al. (1984). For organic compounds, if a biotransfer factor is not readily available for a particular compound, they will be estimated based on the chemical K_{ow} with the equation (Travis and Arms, 1988) for milk:

$$\log F_{iM} = -8.10 + \log K_{ow} \qquad \text{(A.3-30)}$$

and for beef:

$$\log F_{iB} = -7.6 + \log K_{ow} \qquad \text{(A.3-31)}$$

Once the concentration in the animal product is determined human uptake can be calculated for beef and milk using the following equations (EPA 1989a):

$$(radionuclides) \quad I_{iB} = (C_{iB})(IR)(EF)(ED)(FI) \qquad \text{(A.3-32)}$$

$$(chemicals) \quad I_{iB} = \frac{(C_{iB})(CF)(IR)(EF)(ED)(FI)}{(BW)(AT)} \qquad \text{(A.3-33)}$$

$$(radionuclides) \quad I_{iM} = (C_{iM})(IR)(EF)(ED)(FI) \qquad \text{(A.3-34)}$$

$$(chemicals) \quad I_{iM} = \frac{(C_{iM})(IR)(EF)(ED)(FI)}{(BW)(AT)} \qquad \text{(A.3-35)}$$

where:

I	=	intake of ith constituent in beef or milk (pCi)(mg/kg-day)
C_{iB}	=	concentration of ith constituent in beef (pCi/kg)(mg/kg)
C_{iM}	=	concentration of ith constituent in the milk (pCi/L)(mg/L)
IR	=	ingestion rate (L/day for milk; kg/day for beef)
CF	=	conversion factors (10^{-3} kg/g for chemicals in beef)
EF	=	exposure frequency (days/yr)
ED	=	exposure duration (yr)
BW	=	body weight (kg)
AT	=	averaging time (days); for noncarcinogens, AT equals (ED x 365 days/yr); for carcinogens, AT equals (70 years x 365 days/yr)
FI	=	fraction of food ingested from source

A.3.4.4.3 Biouptake of Constituents into Fish

Fish in the Great Miami River have the potential to bioconcentrate constituents from surface water and bioaccumulate constituents from sediments or through the food chain. If the concentration of a constituent in fish is unknown, its bioconcentration will be determined from its concentration in surface water with the equation:

$$C_{iF} = (C_{isw})(BCF_i) \qquad \text{(A.3-36)}$$

where:

C_{iF}	=	concentration of ith constituent in edible portion of fish tissue (pCi/g, chemical, mg/g, radionuclide)
C_{isw}	=	concentration of ith constituent in surface water (pCi/L, radionuclide; mg/L, chemical)
BCF_i	=	bioconcentration factor of ith constituent from surface water to edible portion of fish tissue (L/g)

Bioconcentration factors for constituents are provided in Table A.3-23. Bioconcentration factors for inorganics and radionuclides were obtained from NRC (1984). For organic chemicals, if bioconcentration factors were not available, they will be estimated with the equation (Lyman et al. 1982):

$$\log BCF_i = 0.76 \log K_{ow} - 0.23 \qquad \text{(A.3-37)}$$

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The bioaccumulation of constituents from sediment to fish will consider the equilibrium partitioning of the constituent between sediment and surface water with the equation:

$$C_{isw} = \frac{(C_{ised})(CF)}{K_{di}} \qquad \text{(A.3-38)}$$

where:

C_{ised} = concentration of ith constituent in sediment (pCi/g, radionuclide; mg/kg, chemical)
K_{di} = surface water to sediment partitioning coefficient for i^{th} constituent (L/kg)
CF = conversion factor, where CF = 1 (chemicals), and CF = 1000 (g/kg - radionuclide)

By combining Equations A.3-36 and A.3-38, the concentration of ith constituent in fish from sediments is calculated by:

$$C_{iF} = \frac{(C_{ised})(CF)(BCF_i)}{K_{di}} \qquad \text{(A.3-39)}$$

K_d values for representative site constituents are presented in Table A.3-23.

The amount of a constituent a receptor takes in as a result of consuming fish on a regular basis is determined by using the concentration of a chemical in the fish's flesh. Intake can be calculated using the following equations:

$$(radionuclides) \quad I_{iF} = (C_{iF})(IR)(EF)(ED) \qquad \text{(A.3-40)}$$

$$(chemicals) \quad I_{iF} = \frac{(C_{iF})(IR)(CF)(EF)(ED)}{(BW)(AT)} \qquad \text{(A.3-41)}$$

where:

I = intake of ith constituent from fish ingestion (pCi) (mg/kg-day)
C_{iF} = concentration of ith constituent in fish (pCi/mg) (mg/kg)
IR = ingestion rate (g/day)
EF = exposure frequency (day/year)
ED = exposure duration (yr)

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BW = body weight (kg)
AT = averaging time (days); for noncarcinogens (AT equals (ED)(365 days/yr); for carcinogens, AT equals (70-year lifetime)(365 days/yr)
CF = conversion factor (10^{-3} kg/g)

A.3.4.5 Quantification of Intakes and Exposures from Multiple Pathways

The most probable scenarios involve simultaneous exposures via a number of pathways. The multiple exposure scenarios are evaluated by assuming the contributions from component pathways are cumulative. Thus, all the receptors evaluated are subject to more than one exposure pathway and have been evaluated accordingly.

A.3.4.6 Scenario-Specific Assumptions and Exposure Parameters

Exposure parameters are dependent on receptor-specific behavior patterns, and vary from receptor scenario to receptor scenario. The following sections begin with a brief description of each set of parameters used to evaluate exposures to hypothetical receptors during this assessment. This synopsis is followed by descriptions of any site-specific parameter values and their derivation. Tables A.3-20, A.3-21a and A.3-21b contain a summary of these parameters.

A.3.4.6.1 Exposure Duration (ED)

The exposure duration is the period of time a receptor is exposed in a lifetime. Because of the agricultural history of the area, the RME adult may be exposed over an entire 70-year lifetime. Therefore, the exposure duration selected for this receptor is 70 years. This value is over twice as long as the standard 30-year exposure presented in EPA (1991b). The 70-year value was determined in consultation with EPA Region V and applies to the on-property and off-property RME adult farmers, the off-property point receptors, the Great Miami River user, and the off-property user of beef and dairy products.

The RME child and the CT adult are assumed to receive exposures over 6 years and 9 years, respectively, as suggested by supplemental guidance (EPA 1991b). The trespassing youth is assumed to receive exposures while roaming randomly about the property between the ages of six and 18. EPA suggests that this activity be evaluated over a period of 12 years (DOE 1992d). The home builder is evaluated to assess the health impacts of exposures incurred while building a home on the property. This activity is assumed to be completed within one year of groundbreaking (NRC 1984), so the exposure duration for the home builder is set at one year. The exposure durations for the groundskeeper and

on-property visitor is the standard occupational value of 25 years (EPA 1991j). A exposure durations used for the critical receptors are nine years (from grades K to 8) for for local elementary school children, and four years for high school students.

The Great Miami River user is also assumed to swim in the river. It is assumed that this receptor only swims during a 30-year period of the individual's life. Therefore, the exposure duration for this scenario is 30 years.

The recreational receptors are assumed to visit the site throughout their lifetime; six years as a child (age 1 to 6), 12 years as a youth (ages 6 to 18), 38 years as an adult (ages 19 to 55), and as a senior (ages 56 to 70). The combined exposure duration for this receptor is 70 years. Only the youth is assumed to play in Paddys Run; therefore, the exposure duration for exposure to surface water and sediment is 12 years.

A.3.4.6.2 Exposure Frequency

The exposure frequency is the number of days a receptor is exposed each year. The exposure frequency selected for scenarios involving a RME adult farmer or a RME child is the standard RME value of 350 days per year listed in EPA (1989a). The 350 days per year value applies to the off-property RME adult farmer, the on-property RME adult farmer, the on-property RME resident child, the off-property user of beef and dairy products, and the Great Miami River user. The Great Miami River user is also assumed to swim in the river. The exposure frequency selected for this activity is seven days per year as suggested by guidance (EPA 1989a). The exposure frequency selected for scenarios involving a CT adult farmer is 234 days per year, as suggested in the Superfund's Standard Default Exposure Factors for the Central Tendency and Reasonable Maximum Exposure - Preliminary Review Draft (EPA 1993h). EPA Region V suggests the exposure frequency of the trespassing child to be set at 52 days per year (DOE 1992d).

An occupational exposure frequency of 250 days per year was selected for the groundskeeper and visitor. The home builder is evaluated to assess the health impacts of exposures incurring while building a home on the property. For this activity, the total time spent building the house is assumed to be 175 eight-hour days. This is believed to be reasonably conservative for typical construction. It is believed to be very conservative for activities involving the use of heavy construction equipment.

Based on the required school days in the state of Ohio, the critical subpopulations (elementary and high school students) spend 180 days per year attending school.

The recreational receptors are assumed to frequent the site (park) at varying frequencies, which generally increase with the level of park development (from wildlife reserve to developed park). The exposure frequency for wading in Paddys Run by a youth is assumed to be 52 events/days per year, as assumed for the exploring youth under current land use and as suggested by EPA Region V. The exposure frequencies for all other exposure routes affecting these receptors are presented by recreational scenario below.

Scenario A - Wildlife Reserve

The contact rate is determined based on the age of the receptor, activity and the exposure time. Exposure frequencies were developed to consider events occurring during "reasonable" weather conditions for recreation. Since no rest room facilities are provided, an average exposure time of 1 hour per day was assumed for young children and senior adults and 2 hours per day was assumed for the youth and adult. The exposure frequencies for this receptor under Scenario A were developed as follows:

- An average exposure frequency of 26 days per year for young child (age 1 to 6) assuming 1 event per week, for 26 weeks per year
- An average exposure frequency of 39 days per year for a youth (age 7 to 18), which is an average of the following:
  - 1 event per week, for 26 weeks per year for a youth, age 7 to 12, (26 events per year)
  - 2 events per week, for 26 weeks per year for a youth, age 13 to 18, (52 events per year)
- An average exposure frequency of 52 days per year for an adult, age 18 to 55, which corresponds to 2 events per week, 26 weeks per year
- An average exposure frequency of 26 days per year for an senior adult assuming 1 event per week, for 26 weeks per year

Scenario B - Undeveloped Park with Limited Facilities

Because the environmental setting is assumed to be more urban (i.e., a neighborhood park) versus rural (i.e., a Wildlife Reserve), this scenario is assumed to have higher access for the youth. Also, the access to open spaces for playing ball and the types of recreation offered by this scenario are assumed to be more attractive for a youth and less attractive for an adult than was assumed for Scenario A.

As with the Wildlife Reserve scenario, this scenario assumes no rest room facilities are provided, which restricts the average exposure time per day. Therefore, an average exposure time of 1 hour per day was assumed for young child and senior adult, and 2 hours per day was assumed for the youth and adult. The exposure frequencies for this receptor under Scenario B were developed as follows:

- An average exposure frequency of 40 days per year for young child (age 1 to 6) assuming 1 event per week, for 40 weeks per year (approximately three-fourths of a year)
- An average exposure frequency of 104 days per year for a youth (age 7 to 18), which is based on the following:
  - 4 events per week, for 12 weeks per year for the summer vacation months
  - 2 events per week, for 28 weeks per year for the spring and fall months, for a combined total of 40 weeks exposure per year
- An average exposure frequency of 40 days per year for an adult (age 18 to 55), which corresponds to 1 events per week, 40 weeks per year
- An average exposure frequency of 26 days per year for an senior adult (age 55 to 70) assuming 1 event per week, for half (26 weeks) of the year

As demonstrated by these exposure frequencies, Scenario B was assumed to result in a greater frequency of exposure for the youth and the young child. An exposure frequency of 104 days per year for the youth is assumed to represent the reasonable maximum exposure for this age group, considering this value is an average frequency over their exposure duration (12 years).

Scenario C - Developed Park with Recreational Facilities

The presence of rest rooms, and developed recreational facilities including playgrounds, ball fields with organized sport teams, and picnic facilities, are assumed to attract more visitors and encourage greater family use of the site. The activities for this scenario are assumed to result in greater use by the child. In addition, the availability of rest room facilities is assumed to encourage a longer average use per day. Consequently, an average exposure time of 4 hours per day was assumed for young child, youth, and adult, with an exposure time 2 hours per day assumed for the senior adult. The exposure frequencies for these receptors were developed as follows:

- an average exposure frequency of 64 days per year for a young child (age 1 to 6), based on the following

- 3 event per week, for 12 weeks per year (the summer months)
- 1 event per week, for 28 weeks per year for spring and fall months, for a combined total of 40 weeks per year

- an average exposure frequency of 104 days per year for a youth (age 7 to 18), which is based on the following:

  - 4 events per week, for 12 weeks per year for the summer vacation months
  - 2 events per week, for 28 weeks per year for the spring and fall months, for a combined total of 40 weeks exposure per year

- an exposure frequency of 40 days per year for an adult (age 18 to 55) and senior adult (age 56 to 70), which corresponds to 1 events per week, 40 weeks per year

The exposure frequency for the youth is assumed to be at the reasonable maximum value for Scenario B; thus, the exposure frequency was held constant but the exposure time was increased from 2 hours to 4 hours per day to account for the developed recreational facilities. The exposure frequency for the child was increased from 40 to 64 events per year to account for the availability of playground facilities. However, since children need supervision, a task split possibly among an older sibling, parent and/or grandparent, the child was assumed to be exposed for fewer days per year than the youth. Adults are limited in their exposure frequency due to commitments with work and running and managing a home. Therefore, the exposure frequency for their recreational use of any one park was assumed to be limited to 40 days per year for both adult age groups.

A.3.4.6.3 Exposure Time

The exposure time is the amount of time a receptor is exposed each day. The RME adult farmer scenarios constructed for this assessment assume the receptor works outside of the residence for 2000 hours per year. Spreading this time over the 350 days per year of on-site exposure yields an average outdoor exposure time of 5.7 hours per day. This leaves an indoor exposure time of 18.3 hours per day for this receptor. Thus, about 25 percent of the receptor's time on-site is spent outside of the residence. These values apply to the off-property RME resident adult farmer and the on-property RME resident adult farmer. The on-property RME resident child is assumed to spend only 2 hours per day outdoors, for a total of 700 hours per year.

It is assumed that the CT resident adult farmer is exposed outdoors for 1155 hours out of the 234 days spent within the boundaries of the operable unit each year (EPA 1993h). This is equivalent to an exposure time of 4.9 hours per day of exposure. This leaves an indoor exposure time of 19.1 hours per

day for this receptor. Thus, about 20 percent of the receptor's time on-site is spent outside of the residence. These values apply only to the CT receptor.

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The trespassing youth, exploring youth, and the recreational receptors are assumed to spend limited time on the site. A standard default value for these activities is unavailable. EPA Region V suggests that the exposure time of the trespassing youth to be set at 4 hours per day if site-specific information is not available (DOE 1993d). The recreational receptors are assumed to spend between 1 to 4 hours per visit on the site, depending on the age range of the receptor and the level of park develop of the site. The exposure times for the recreational receptors were decribed earlier in Section A.3.4.6.3, in relation to the exposure frequencies used.

The home builder is evaluated to assess the health impacts of exposures incurring while building a home on the property. It is assumed that the worker spends 175 eight-hour completing the house. For purposes of assessing exposure to gamma radiation, this time is divided equally into 4 hours per day outside of the structure and 4 hours per day inside of the structure.

The exposure time assumed for the critical subpopulations (elementary and highschool children) is two hours per day of outdoor exposure, which represents one-half hour walking to school, one-half hour walking home, and one hour for recess or outdoor activity.

The RME adult farmer and child receptors, and the Great Miami River User are assumed to receive skin exposures via bathing or showering once a day. Since no site-specific information on this activity is available, the adult exposure time selected for this activity is 0.25 hours per day for the RME adult, and 0.17 hours per day for the CT adult, as suggested by guidance (EPA 1989a). The exposure time selected for the RME child performing this activity is 0.25 hour per day, as suggested by guidance (EPA 1992e).

The Great Miami River user is assumed to use the river for recreational swimming. Since no site-specific information on this activity is available, the exposure time selected for this activity is 2.6 hours per day, 7 days per year, as suggested by guidance (EPA 1992e).

The groundskeeper is assumed to work a normal 8 hour shift on site (EPA 1991j), while the (visitor/delivery person) is assumed to not spend more than 2 hours per day on site while completing his daily delivery route.

A.3.4.6.4 Inhalation Rates

The inhalation rate is the volume of air inhaled daily by a receptor. EPA suggests using a value of 20 cubic meters per day (0.83 m^3/hr) as the inhalation rate for a CT and RME adult (EPA 1989b, 1993h). Due to a lack of information, this inhalation rate is used for the trespassing youth, recreational receptors, school children (critical subpopulations), and all adult exposures, except those involving inhalation of volatiles and radon within the home and the visitor exposures. Inhalation of volatiles from water and radon in the home is evaluated using 15 m^3/day (EPA 1991f). The home builder, visitor and groundskeeper are assumed to be more active than the average adult, so an inhalation rate of 2.5 m^3/hr is used for the time this receptor is on site. The inhalation rate for the on-property RME child was set at 0.5 m^3/hr, given the child's smaller lung capacity and time spent at rest (EPA 1988e, EPA 1993c).

A.3.4.6.5 Soil/Sediment Ingestion Rates

The soil ingestion rate is the mass of soil ingested daily by a receptor. The soil ingestion rate of the RME adult farmer estimated for this risk assessment is a site-specific time-weighted average ingestion rate. It is based on ingestion rates for specific activities performed during the course of the receptor's lifetime, and the relative length of time spent engaged in those activities.

The first six years of this receptor's life are spent as a young child whose ingestion rate is 0.2 grams per day for 350 days per year (total of 420 g during this period). Between the ages of 18 and 70, the RME adult farmer is assumed to spend 50 years working a farm. Assuming the farmer follows the usual and recommended agricultural practices in Hamilton County (DOC 1987, USSCS 1992), he will spend 100 days/year outdoors working the land, during which he is assumed to consume 0.48 g of soil per day, or a total for this activity of 2400 g. During the remaining 14 years, 12 years as an older child and 2 years spent as an adult, it is assumed that the soil ingestion rate is 0.1 g/day for each of the 350 days/year spent on site (total of 490 g during this period). The total soil ingestion, 4560 g, divided by 25,550 days (365 days x 70 years) yields a time-weighted average intake of 0.18 g/day.

The soil ingestion rates of 0.1 g/day for the groundskeeper, trespassing youth, exploring youth, and youth, CT farmer, and adult aged recreational receptors and 0.2 g/day for the on-property resident child and the child recreational receptor are specified by EPA (EPA 1991j, 1993h). It was assumed that all on-property receptors received 100 percent of their soil intake from the site. This includes the on-property RME child and adult, the on-property CT adult, the groundskeeper, and the home builder. The trespassing child was assumed to only receive 25 percent of his daily soil intake from the site, as only

4 of 16 waking hours are spent on property; and the recreational receptors receive a percent of the daily soil intake rates, based upon the number of hours spent on the site out of 16 waking hours (DOE 1993e (see Table A.3-21b). A higher occupational soil ingestion rate (0.48 g/day) as specified in EPA (1991j) for construction scenarios was selected for the on-property home builder.

Because default values specific to sediment are not available, the soil ingestion rate of 0.1 g/day was used for evaluating scenarios involving contact with surface waters and hence, sediment. This value was adjusted by a fraction ingested (FI), based upon the number of hours spent at the source out of 16 waking hours.

A.3.4.6.6 Water Ingestion Rates

The water ingestion rate is the volume of water drunk daily by a receptor. Generally this intake is from drinking water, but may be from incidental ingestion during swimming or wading.

This assessment uses a drinking water ingestion rate of 2 liters per day for all RME adult receptors and 1 liter per day for the RME child, as stipulated in EPA (1989a). EPA suggests assuming that the CT adult drinks 1.4 liters per day (EPA, 1993h).

The hypothetical Great Miami River user accidentally ingests water while swimming in the river. The ingestion rate of this receptor is 0.05 liters per hour of exposure (EPA 1992e). A value slightly less than this (0.035 L/hr) was selected for trespassing youth and recreational receptors, who may contact Paddys Run while on site. Because Paddys Run is an intermittent stream, too shallow for swimming, this value is believed to better represent incidental ingestion for a wading scenario.

A.3.4.6.7 Food Consumption

Some of the hypothetical receptors evaluated consume vegetables, fruit, beef, and dairy products grown on property. The hypothetical on-property RME adult farmer eats 201 grams per day of vegetables, 142 grams per day of fruit, and 101 grams of beef per day. As a reasonable worse case, it is expected that 40 percent of the total daily vegetables and 30 percent of the total daily fruits consumed are produced at home and eaten during half of the year (EPA 1990d). Approximately 75 percent of the meat eaten are expected to be produced on the home farm (EPA 1990d). The RME adult consumes home-grown dairy products such as milk and cheese at the rate of 0.3 liters per day, of which approximately 75 percent of a daily rate of 0.4 L/day produced at home (EPA 1989a).

The CT adult receptor also consumes 201 grams per day of vegetables and 142 grams per day of fruit. However a smaller percentage of the fruit and vegetables are expected to be produce at home. EPA suggest 20 percent of the fruit consumed and 25 percent of the vegetables consumed by the CT receptor are homegrown (EPA 1993h). The CT farmer consumes 50 grams of beef per day from home-grown sources. The CT adult farmer was assigned a value of 0.2 liters per day, of which 75% is produced on the home farm.

There is no EPA guidance on food ingestion rates for children at this time. The values used in this assessment were derived during the development of the Risk Assessment Work Plan Addendum (DOE 1992a) and are based on work performed by the U.S. Department of Agriculture (USDA 1986). The hypothetical RME child eats 100 grams per day of vegetables, of which 40 percent is homegrown. Approximately 204 grams per day of fruit, of which 30 percent is homegrown is consumed by the child. The ingestion rate of beef is 29 grams per day. The RME child consumes dairy products such as milk and cheese at the rate of 0.9 liters per day (NRC 1977), of which 75 percent is produced at home.

A.3.4.6.8 Body Weights

The body weight is the mass of the receptor, in kilograms. This assessment uses the median body weight of 70 kilograms for all adult receptors, 43 kilograms for the youths (age 7 to 18), and 15 kilograms for all young children under six, 31 kilograms for the elementary students (grades K to 8), and 56 kilograms for highschool students (grades 9 to 12) (EPA 1990e).

A.3.4.6.9 Surface Areas

The surface area is the amount of the body's skin surface that is exposed as a result of a specific activity or group of activities. EPA's interim report on dermal assessment (EPA 1992a) and supplemental guidance on dermal assessment (EPA 1992i) lists suggested values for surface areas. The UCL surface areas used to evaluate exposures from dermal contact while bathing and swimming in this assessment are 2.3 square meters for all adult receptors, and 0.8 square meters for children. These values differ from those presented in the DOE (1992a), which predated the dermal guidance.

It was assumed that 25 percent of a receptor's UCL total body surface area is accounted for by the hands, legs, arms, neck, and head, allowing for clothing (EPA 1992a). Approximately 30 percent of the UCL total body surface area was assumed for a wading scenario.

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A.3.4.6.10 Adherence Factors

Uptake of chemicals through the skin from soil require that a sufficiently intimate intake be established between the soil and the skin. One of the factors that determine the quantity of chemical absorbed is the amount of soil that adheres to the skin. Following the suggestion of EPA (1992e), a factor of 1.0 mg/cm^2 is used for all RME evaluations and 0.2 is used for the CT adult farmer.

A.3.4.6.11 Averaging Times

The averaging time is the duration of time, expressed in days, over which the period of exposure occurs. It is only used in the evaluation of chemical exposures. The averaging time selected depends on the health effect being evaluated. Long-term intakes of noncarcinogenic agents are calculated by averaging intakes over the period of exposure, as per EPA guidance (EPA 1989a). Carcinogenic intakes are averaged over the lifetime of the receptor. This approach is based on the contention that a high dose administered over a short period is equivalent to a low dose over a long period.

A.3.5 SUMMARY OF EXPOSURE ASSESSMENT

This exposure assessment evaluates the types and magnitudes of contact that a potential receptor may have with site-related constituents. A conceptual model for Operable Unit 5 has been developed to provide the basis for identifying and evaluating the potential exposures to humans in this baseline risk assessment. The conceptual model served as a framework for identifying the paths by which these hypothetical exposures may occur.

Intakes have been calculated using the methods, parameters, and concentrations described in this section. Due to the large number of tables, the resulting intakes are presented in Attachment A.VI.

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TABLE A.3-1

SUMMARY OF EXPOSURE PATHWAYS QUANTITATIVELY EVALUATED IN THE BASELINE RISK ASSESSMENT

Scenario/Receptor[a]	Soils	Surface Water	Sediment	Air	Groundwater
CURRENT LAND WITH/WITHOUT ACTIVE ACCESS CONTROLS					
Trespassing Youth/ Exploring Youth	• Incidental ingestion of surface soils • Dermal contact with surface soils • Direct radiation	• Incidental ingestion of surface waters (Paddys Run; On-site Surface Waters) • Dermal contact with surface waters	• Incidental ingestion of sediments (Paddys Run, On-site Drainage) • Dermal contact with sediments • Direct radiation	• Inhalation of VOCs, gases, and particulates	NA[b]
Groundskeeper	• Incidental ingestion of surface soils • Dermal contact with surface soils • Direct radiation	NA	NA	• Inhalation of VOCs, gases, and particulates	NA
Consumer of Meat and Milk Products	• Ingestion of meat and dairy products	NA	NA	NA	NA
Off-Property RME Adult Farmer/Child (at fenceline and point locations)[d]	• Incidental ingestion of surface soils • Dermal contact with surface soils • Direct radiation • Ingestion of vegetables and fruits • Ingestion of meat and dairy products	NA	NA	• Inhalation of VOCs, gases, and particulates • Ingestion of vegetables and fruit • Ingestion of meat and dairy products	• Ingestion of drinking water • Inhalation of VOCs and gases • Dermal contact while bathing • Ingestion of vegetables and fruit • Ingestion of meat and dairy products

TABLE A.3-1 (Continued)

Scenario/Receptor[a]	Soils	Surface Water	Sediment	Air	Groundwater
Off-Property User of Surface Water from the Great Miami River	NA	• Incidental ingestion while swimming • Dermal contact while swimming • Drinking water ingestion • Inhalation of VOCs from use of water in the home • Dermal contact while bathing • Ingestion of vegetables and fruit • Ingestion of meat and dairy products • Ingestion of fish	NA	NA	NA
Visitor	• Direct radiation exposure from contaminated soils	NA	NA	• Inhalation of VOCs, gases, and particulates	NA
Critical Subpopulations	NA	NA	NA	• Inhalation of VOCs, gases, and particulates	NA

TABLE A.3-1 (Continued)

Scenario/Receptor[a]	Soils	Surface Water	Sediment	Air	Groundwater
FUTURE LAND USE WITH FEDERAL OWNERSHIP/INSTITUTIONAL CONTROLS					
Off-Property Farmer/Child (at fenceline and point locations)[d]	• Incidental ingestion of surface soils • Dermal contact with surface soils • Direct radiation • Ingestion of vegetables and fruit • Ingestion of meat and dairy products	NA	NA	• Inhalation of VOCs, gases, and particulates • Ingestion of vegetables and fruits • Ingestion of meat and dairy products	• Ingestion of drinking water • Inhalation of VOCs from home water use • Dermal contact while bathing • Ingestion of vegetables and fruit • Ingestion of meat and dairy products
Recreational Receptors -Wildlife reserve -Nondeveloped Park -Developed Park	• Incidental ingestion of soils • Dermal contact with soils • Direct radiation	• Incidental ingestion of surface water • Dermal contact with surface water • Direct radiation	• Incidental ingestion of sediments • Dermal contact with sediments • Direct radiation	• Inhalation of VOCs, gases, and particulates	NA
Groundskeeper(s)	• Incidental ingestion of soils • Dermal contact with soils • Direct radiation	NA	NA	• Inhalation of fugitive dust, VOCs, and gases	NA
Off-Property User of Surface Water from the Great Miami River[c]	NA	• Incidental ingestion while swimming • Dermal contact while swimming • Drinking water ingestion • Inhalation of VOCs from use of water in the home • Dermal contact while bathing • Ingestion of vegetables and fruits • Ingestion of meat and dairy products • Ingestion of fish	NA	NA	NA

TABLE A.3-1 (Continued)

Scenario/Receptor[a]	Soils	Surface Water	Sediment	Air	Groundwater
FUTURE LAND USE WITHOUT FEDERAL OWNERSHIP/INSTITUTION CONTROLS					
On-Property RME or CT Resident Farmer and On-Property RME Child	• Incidental ingestion of soils • Dermal contact with soils • Direct radiation • Ingestion of vegetables and fruit • Ingestion of meat and dairy products	NA	NA	• Inhalation of VOCs, gases, and particulates • Ingestion of vegetables and fruit potentially contaminated by air deposition of soil particulates • Ingestion of meat and dairy products from animals grazed on lands potentially contaminated by air deposition of soil particulates	• Ingestion of drinking water • Dermal contact while bathing • Inhalation of volatiles and radon while showering • Ingestion of vegetables and fruit irrigated with groundwater • Ingestion of meat and dairy products from animals grazed on irrigated lands or watered using groundwater
Off-Property Farmer/Child (at fenceline and point locations)[d]	• Incidental ingestion of surface soils • Dermal contact with surface soils • Direct irradiation • Ingestion of vegetables and fruit • Ingestion of meat and dairy products	NA	NA	• Inhalation of VOCs, gases and particulates • Ingestion of fruits and vegetables • Ingestions of meat and milk products	• Ingestion of drinking water • Inhalation of VOCs and gases • Dermal contact while bathing • Ingestion of fruits and vegetables • Ingestion of meat and milk products
Construction Worker (Home Builder)	• Incidental ingestion of soils • Dermal contact with soils • Direct radiation	NA	NA	• Inhalation of particulates, volatiles, and gases	NA

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TABLE A.3-1 (Continued)

[a]Receptors which are presented in bold are plausible for the "current land use without active access controls" scenario. However, these receptors will have the same risks as those predicted for the "current land use with access control" scenario.
[b]Not applicable.
[c]The off-property user of surface water from the Great Miami river is also a plausible receptor for the "future land use without Federal ownership/institutional controls." However, this receptor will have the same risks as those predicted for the "future land use with Federal ownership/institutional controls."
[d]The off-property farmer and child are evaluated at several locations surrounding the FEMP. Direct soil pathways will only be evaluated at fenceline locations and not at off-site point locations not adjacent to the FEMP. However other pathways listed are evaluated at both fenceline and off-site point locations.
[e]It is assumed that under the assumption of access controls (i.e., continued government ownership), the farm family would be supplied with bottled water for ingestion.

TABLE A.3-2A

POTENTIAL RECEPTOR LOCATIONS/AREAS/EXPOSURE POINTS CURRENT SITE CONDITIONS, LAND USE - WITH ACCESS CONTROLS

Receptor	Location/Area/Exposure Points	Data Evaluated
• Off-Property Resident Farmer/Child	• Agricultural areas exist to the northwest, south, east, and west of the FEMP property boundary. A forested area exists to the northeast of the site. Private wells are located in proximity of the FEMP property line. Particular emphasis was placed on gathering information from soils and wells located downgradient of the site. -1) Rural/agricultural area along eastern boundary of site. -2) Rural/agricultural areas to the south of the FEMP. -3) Rural/agricultural area to the north of the FEMP (this area is of lesser importance as it is generally upgradient of the general groundwater flow direction).	- Modeled air contaminant concentrations - Measured contaminant concentrations (95% upper confidence limit [UCL]) in soils: 1) Soils along eastern boundary of site. 2) Offsite South Plume soils. 3) Soils along northern boundary of the site. - Measured contaminant concentrations (95% UCL) in groundwater (1993 data whenever possible): 1) Wells along eastern boundary of the site. 2) Offsite South Plume wells. 3) Wells along northern border. 4) Monitoring wells in area below South Plume.
• Consumer of Animal Products	• Grazing areas (No. 1, No 2, No. 3) exist (within the FEMP property boundary) to the northwest, northeast, south and west of the FEMP production area. Off-property farmers use these areas for grazing dairy cattle.	- Measured concentrations (95% UCL) in soils in each of the three current grazing areas. Measured concentrations in the surface waters of the SSOD and Paddys Run will also be evaluated.

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TABLE A.3-2A (Continued)

Receptor	Location/Area/Exposure Points	Data Evaluated
• Groundskeeper/FEMP Employee who maintains fences, cuts grass, and performs general security	• Based on the photographs of the former Production Area, a significant percentage (≅ 70) is currently covered by concrete and structures. (The northern one third of the Production Area has the highest percentage of land area not covered by concrete/structures.) However, for purposes of the baseline risk assessment, it will be assumed that buildings and structures are not present. RME receptor locations/areas: Area 1 - Administration/Health & Safety Bldg. Area Area 2 - Main Production Facilities Area Area 3 - Northeast Corner of Production Area Area 4 - Northwest Corner of Production Area Area 5 - Fire Protection Training Area Area 6 - STP Area Area 7 - Eastern Boundary Area Area 8 - North Boundary Area Area 9 - Waste Storage/Disposal Area Area 10 - FEMP Area South of the Production Area	- Measured contaminant concentrations (95% UCL) in soils. - Modeled air concentrations.
• Visitor	• It is assumed that the visitor only has access to Area 1 - the Administration Area.	- Same representative concentrations (soils, air) specified for groundskeeper receptor.
• Trespassing Youth	• Same locations described for groundskeeper receptor except that it is assumed that the youth does not have access to the Production Areas.	- Same representative concentrations (soils, air) specified for groundskeeper receptor. Surface water and sediments data available for the FEMP study areas will also be evaluated.

TABLE A.3-2A (Continued)

Receptor	Location/Area/Exposure Points	Data Evaluated
• Great Miami River User	• GMR downstream of the effluent line and downstream of the confluence with Paddys Run.	- Measured contaminant concentrations in surface waters and sediments (95% UCL or maximum): - Between effluent discharge and confluence with Paddys Run. - Below confluence with Paddys Run.

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TABLE A.3-2B

POTENTIAL RECEPTOR LOCATIONS/AREAS/EXPOSURE POINTS CURRENT SITE CONDITIONS, LAND USE - WITHOUT ACCESS CONTROLS

Receptor	Location/Area/Exposure Points	Data Evaluated
• Off-Property Resident Farmer/Child	• Same scenario/locations specified for Off-Property Resident Farmer/Child for current land use with access controls.	- Measured contaminant concentrations (95% UCL) in soils. - Measured groundwater (95% UCL) concentration. - Modeled air contaminant concentrations.
• Visitor	• Same scenario/locations specified for visitor for current land use with access controls except that it is assumed the visitor has access to Production Area.	- Same representative concentrations (soils, air) specified for the visitor assuming current site conditions with access control, except that it is assumed that visitor has access to Production and STP Areas.
• Exploring Youth	• Same scenario/locations specified for trespassing youth for current use with access controls except it is assumed the exploring child has access to contaminated Production Area and STP Area soils.	- Same representative concentrations (soils, surface water, sediments, air) specified for the trespassing youth assuming current site conditions with access control, except that it is assumed that youth has access to Production and STP Areas.
• Consumer of Animal Products	• It is assumed that livestock will graze in previously restricted areas (Grazing area No. 4).	- Representative soil concentrations in Grazing area No. 4.
• Groundskeeper	• Same locations described for the groundskeeper receptor assuming access controls exist.	- Some representative concentrations specified for the groundskeeper receptor assuming access controls exist.
• Great Miami River User	• Same locations described for the Great Miami River user assuming access controls exist.	- Same representative concentrations specified for the Great Miami River user assuming access controls exist.

TABLE A.3-2C

POTENTIAL RECEPTOR LOCATIONS/AREAS/EXPOSURE POINTS
FUTURE LAND USE - CONTINUED FEDERAL OWNERSHIP

Receptor	Location/Area/Exposure Points	Data Evaluated
• Off-Property Resident Farmer/Child	• Same locations specified under the current land use scenario with access controls.	- Modeled groundwater/air concentrations. - Measured soil concentrations (95% UCL) at FEMP boundary.
• Expanded Trespasser	• Same receptor locations specified for the current land use - exploring youth assuming no access controls are in place.	- Same data specified for the current land use - exploring youth assuming no access controls are in place except that modeled Paddys Run surface water/sediment concentrations will be utilized.
• Groundskeeper	• Same receptor locations specified for the current land use - groundskeeper assuming controls are in place.	- Same data specified for the current land use - groundskeeper assuming access controls are in place.
• Great Miami River User	• GMR at the confluence with Paddys Run.	- Maximum modeled GMR surface water concentrations for the confluence of Paddys Run and GMR.

TABLE A.3-2D

POTENTIAL RECEPTOR LOCATIONS/AREAS/EXPOSURE POINTS
FUTURE LAND USE - WITHOUT FEDERAL OWNERSHIP

Receptor	Location/Area/Exposure Points	Data Evaluated
• On-Property Resident Farmer/Child	• Two RME locations selected based on the results of air and groundwater modeling results and a review of measured soil concentrations: 1) The former Production Area. 2) Area No. 7.	• Modeled groundwater/air concentrations. • Measured soils concentrations. • Measured perched groundwater concentrations. • Modeled radon concentrations.
• Homebuilder	• Same RME locations specified for the on-property resident farmer/child.	• Measured soil concentrations (95% UCL) • Modeled air concentrations.
• Great Miami River User	• Same receptor/locations specified for the future land use Great Miami River user assuming federal ownership continues.	• Same data specified for the future land use Great Miami River user assuming federal ownership continues.
• Off-Property Resident Farmer/Child	• Same receptor/locations specified for the Off-Property resident farmer child assuming federal ownership continues.	• Same data specified for the off-property resident farmer/child assuming federal ownership continues.

TABLE A.3-3
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE SOIL ON-PROPERTY, CURRENT LAND USE

Constituents	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	NA	1.2E+00	9.8E-01	6.2E-01	1.4E+00	5.6E-01	7.5E-01	7.7E-01	1.1E+00	5.5E-01
Np_{237+1d}	NA	7.1E-01	NA	NA	NA	NA	NA	8.1E-01	1.1E+00	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	3.7E+01	NA
Pu_{238}	6.5E-01	6.1E+00	NA	2.2E+00	1.3E+00	1.5E+00	NA	NA	3.0E-01	NA
$Pu_{239/240}$	NA	1.6E+00	1.5E+00	6.0E-01	2.9E+00	1.5E+00	NA	NA	3.0E-01	4.0E-01
Ra_{226+5d}	2.6E+00	1.7E+00	4.8E+00	3.4E+00	NA	1.8E+01	1.2E+00	NA	3.5E+01	1.4E+00
Ra_{228+1d}	NA	5.0E+01	8.3E+00	3.1E+01	5.8E+00	9.5E+00	1.5E+00	NA	1.4E+00	1.2E+00
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	3.1E+00	NA
Sr_{90+1d}	1.7E+00	1.0E+00	3.4E+00	2.2E+00	5.0E+00	3.1E+00	1.4E+00	1.4E+00	1.5E+00	1.4E+00
Tc_{99}	NA	5.1E+00	5.1E+00	8.4E+00	2.7E+01	2.3E+02	1.3E+00	1.6E+00	1.2E+00	1.3E+00
Th_{228+7d}	NA	2.6E+01	5.2E+00	3.1E+01	3.8E+00	5.3E+00	1.6E+00	1.6E+00	8.3E+00	1.2E+00
Th_{230}	3.7E+00	1.0E+02	2.3E+01	3.2E+01	1.4E+01	1.1E+02	2.5E+00	1.8E+00	3.6E+01	2.3E+00
Th_{232}	NA	3.6E+01	5.1E+00	2.7E+01	5.2E+00	1.0E+01	1.6E+00	NA	2.5E+00	8.7E-01
U_{234}	2.8E+01	7.4E+02	2.3E+02	1.4E+02	3.6E+02	1.6E+03	1.2E+01	4.0E+00	3.3E+01	5.6E+00
$U_{235/236}$	1.9E+00	6.3E+01	1.0E+01	1.1E+01	1.9E+01	4.1E+01	9.4E-01	7.0E-01	1.4E+00	8.1E-01
U_{238+2d}	4.1E+01	7.8E+02	2.4E+02	4.6E+02	3.5E+02	6.2E+02	1.3E+01	5.1E+00	7.2E+01	1.4E+01
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
benzene	NA	5.0E-03	2.0E-03	NA	NA	NA	NA	NA	3.0E-03	NA
bis(2-ethylhexyl)phthalate	1.2E-01	2.6E-01	3.7E+00	9.6E-02	5.7E-01	NA	4.5E-02	5.9E-01	3.7E+00	2.1E-01
carbazole	2.5E-01	2.1E-01	6.5E-02	NA	NA	NA	NA	NA	NA	7.0E-03
chloroform	NA	NA	2.8E-01	4.0E-03	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	1.6E-02	4.0E-03	2.2E-02	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	6.0E-03	4.0E-03	3.9E-02	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	2.0E-03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-02	2.0E-02	5.0E-02	1.4E-02	2.2E-01	1.3E-02	1.1E-02	NA	2.8E-02	NA
tetrachloroethene	1.0E-03	1.2E-02	4.8E-01	6.5E-03	1.7E-01	NA	NA	NA	NA	3.0E-03
trichloroethene	NA	3.4E-02	9.0E-02	3.0E-03	NA	NA	NA	4.0E-03	6.0E-03	2.0E-03
1,1,1-trichloroethane	1.0E-01	1.0E-03	1.2E-01	5.0E-03	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	6.8E-01	1.3E+00	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E+00	1.6E+00	9.1E+00	5.3E-02	2.7E+00	5.9E-01	4.8E-02	4.8E-02	1.3E+00	6.7E-02
benzo(a)pyrene	1.6E+00	1.1E+00	1.1E+01	6.7E-02	1.6E+00	9.4E-01	5.1E-02	NA	9.8E-01	6.1E-02
benzo(b)fluoranthene	2.0E+00	1.5E+00	4.5E+00	7.8E-02	7.7E+00	1.8E+00	5.0E-02	5.6E-02	2.4E+00	6.6E-02
benzo(k)fluoranthene	1.5E+00	1.2E+00	3.8E+00	5.6E-02	2.1E-01	1.3E+00	5.6E-02	6.0E-02	6.1E-02	7.7E-02
chrysene	2.2E+00	1.6E+00	3.6E+00	9.5E-02	4.7E+00	5.9E-01	5.9E-02	7.7E-02	1.1E+00	8.8E-02
dibenzo(a,h)anthracene	4.0E-01	3.9E-01	3.4E+00	NA	6.2E-02	4.0E-01	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.3E+00	1.0E+00	8.0E+00	NA	1.8E-01	1.5E+00	NA	NA	4.0E-02	5.0E-02
fluoranthene	4.5E+00	3.6E+00	5.0E+00	1.4E-01	3.8E+00	2.1E-01	1.0E-01	1.6E-01	2.5E+00	1.9E-01
phenanthrene	2.8E+00	3.6E+00	3.1E+00	1.0E-01	2.2E+00	5.9E-02	4.1E-02	9.5E-02	6.8E+00	1.1E-01
pyrene	3.4E+00	3.0E+00	NA	1.0E-01	6.8E+00	2.9E-01	9.4E-02	1.3E-01	2.7E+00	1.5E-01
aroclor-1254	2.0E-01	4.0E+00	1.6E+00	4.5E-01	4.5E-02	1.2E-01	NA	NA	1.4E-02	NA
aroclor-1260	NA	9.0E-01	2.8E+00	NA	1.3E+00	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	3.2E-04	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzodioxin	NA	NA	1.1E-03	NA	NA	NA	NA	NA	9.0E-04	NA
octachlorodibenzofuran	NA	NA	1.3E-03	NA	NA	NA	NA	NA	NA	NA

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TABLE A.3-3
(con't)

Constituents	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	1.3E-01	6.9E-01	6.3E-01	1.5E+00	1.2E+00	8.8E-01	4.2E-01	5.3E-01	NA	9.1E-01
aluminum	1.4E+04	1.2E+04	9.7E+03	1.2E+04	9.1E+03	2.3E+04	9.6E+03	9.9E+03	1.0E+04	8.0E+03
antimony	NA	2.1E+01	NA	4.1E+01	3.1E+00	2.2E+01	3.7E+00	3.2E+00	3.0E+01	4.1E+00
arsenic	1.2E+01	1.2E+01	1.8E+01	7.6E+00	NA	NA	NA	NA	1.0E+01	2.3E+01
barium	1.3E+02	3.4E+02	3.6E+02	9.7E+01	8.3E+01	1.8E+02	1.4E+02	1.0E+02	7.0E+01	7.7E+01
beryllium	9.6E-01	1.5E+00	1.0E+00	8.2E-01	6.3E-01	1.3E+00	9.8E-01	1.6E+00	7.4E-01	1.6E+00
boron	NA	NA	NA	NA	NA	NA	NA	1.4E+01	NA	NA
cadmium	1.1E+00	6.2E+00	4.1E+00	5.8E+00	7.6E+00	NA	1.9E+00	1.7E+00	5.8E+00	1.3E+00
chromium vi	1.8E+01	3.0E+01	5.0E+01	2.6E+01	1.7E+01	3.0E+01	1.4E+01	1.4E+01	1.5E+01	1.8E+01
cobalt	NA	NA	1.1E+01	1.7E+01	1.6E+01	1.6E+01	1.4E+01	1.2E+01	NA	NA
copper	9.1E+01	3.8E+01	8.8E+01	2.3E+01	5.3E+01	2.4E+01	1.6E+01	1.6E+01	1.9E+01	1.5E+01
lead	5.4E+02	3.9E+01	1.8E+02	5.4E+01	1.0E+02	5.7E+02	2.5E+01	2.3E+01	1.9E+01	2.2E+03
manganese	1.2E+03	NA	9.3E+02	NA	1.5E+03	2.0E+03	1.8E+03	9.5E+02	NA	8.1E+02
manganese	1.2E+03	NA	9.3E+02	NA	1.5E+03	2.0E+03	1.8E+03	9.5E+02	NA	8.1E+02
mercury	1.7E-01	1.1E+00	4.8E-01	2.0E-01	NA	1.2E-01	NA	NA	NA	5.7E-01
molybdenum	6.9E+00	1.0E+01	4.6E+00	4.2E+00	4.6E+00	8.5E+00	1.2E+01	1.2E+01	5.2E+00	3.6E+00
nickel	2.4E+01	2.6E+01	2.9E+01	2.5E+01	2.6E+01	2.8E+01	1.9E+01	1.7E+01	2.2E+01	NA
selenium	4.2E-01	1.1E+00	1.9E+00	5.2E-01	8.1E-01	NA	NA	7.7E-01	8.4E-01	2.9E-01
silver	4.9E+00	4.7E+00	7.4E+00	4.5E+00	7.4E+00	1.8E+00	4.8E-01	3.9E+00	4.5E+00	1.3E+00
thallium	3.7E-01	NA	3.9E-01	5.0E-01	NA	4.7E-01	NA	6.7E-01	NA	NA
uranium-total	1.1E+02	1.0E+03	6.2E+02	1.2E+03	5.2E+02	1.7E+03	5.3E+01	1.5E+01	8.1E+01	5.9E+01
vanadium	2.6E+01	2.8E+01	2.5E+01	2.8E+01	NA	4.7E+01	3.1E+01	NA	2.4E+01	NA
zinc	1.3E+02	1.5E+02	3.8E+02	1.0E+02	2.2E+03	4.3E+02	5.7E+01	6.8E+01	8.0E+01	6.2E+01

NA - Constituent is not a CPC for this location.

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TABLE A.3-4
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE SOIL IN GRAZING AREAS, CURRENT LAND USE

Constituents	Grazing Area 1	Grazing Area 2	Grazing Area 3	Grazing Area 4
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	7.2E-01	7.8E-01	8.0E-01	6.4E-01
Np_{237+1d}	NA	NA	NA	6.0E-01
Pb_{210+2d}	NA	NA	NA	3.7E+01
Pu_{238}	NA	NA	NA	2.4E-01
$Pu_{239/240}$	6.0E-01	NA	NA	6.0E-01
Ra_{226+5d}	NA	NA	NA	1.0E+01
Ra_{228+1d}	NA	NA	1.2E+00	2.0E+00
Ru_{106}	NA	NA	NA	2.2E+00
Sr_{90+1d}	2.4E+00	2.5E+00	1.5E+00	2.9E+00
Tc_{99}	1.3E+00	NA	NA	4.8E+00
Th_{228+7d}	1.5E+00	4.2E+00	1.8E+00	6.6E+00
Th_{230}	1.7E+00	2.1E+00	2.5E+00	4.5E+01
Th_{232}	NA	NA	1.2E+00	5.2E+00
U_{234}	3.0E+00	3.7E+00	1.3E+01	3.2E+01
$U_{235/236}$	8.1E-01	1.6E+00	1.0E+00	5.4E+00
U_{238+2d}	2.9E+00	4.5E+00	1.4E+01	3.0E+02
Rn_{222+4d}	NA	NA	NA	NA
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
benzene	NA	NA	NA	3.0E-03
bis(2-ethylhexyl)phthalate	7.0E-01	6.5E-02	4.5E-02	3.7E+00
carbazole	7.0E-03	NA	NA	7.1E-02
chloroform	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
methylene chloride	NA	NA	1.1E-02	2.2E-01
tetrachloroethene	3.0E-03	NA	NA	1.7E-02
trichloroethene	2.0E-03	NA	NA	6.0E-03
1,1,1-trichloroethane	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA
benzo(a)anthracene	4.8E-02	NA	4.8E-02	2.7E+00
benzo(a)pyrene	6.0E-02	NA	5.1E-02	1.6E+00
benzo(b)fluoranthene	3.9E-02	NA	5.0E-02	7.7E+00
benzo(k)fluoranthene	5.3E-02	NA	5.6E-02	1.3E+00
chrysene	6.1E-02	4.0E-02	5.9E-02	4.7E+00
dibenzo(a,h)anthracene	NA	NA	NA	4.0E-01
indeno(1,2,3-cd)pyrene	3.5E-02	NA	NA	1.5E+00
fluoranthene	1.2E-01	9.2E-02	1.0E-01	3.8E+00
phenanthrene	6.7E-02	6.5E-01	4.1E-02	6.8E+00
pyrene	1.0E-01	6.5E-01	8.2E-02	6.8E+00
aroclor-1254	NA	NA	NA	4.0E-01
aroclor-1260	NA	NA	NA	1.3E+00
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	9.0E-04
octachlorodibenzofuran	NA	NA	NA	NA

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TABLE A.3-4
(con't)

Constituents	Grazing Area 1	Grazing Area 2	Grazing Area 3	Grazing Area 4
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	6.8E-01	1.7E+00	3.5E-01	6.9E-01
aluminum	NA	1.0E+04	9.4E+03	1.4E+04
antimony	1.1E+01	NA	3.7E+00	3.0E+01
arsenic	6.1E+00	NA	NA	2.2E+01
barium	NA	1.1E+02	9.5E+01	8.1E+01
beryllium	1.4E+00	1.7E+00	5.3E-01	8.0E-01
boron	NA	1.4E+01	NA	NA
cadmium	2.8E+00	1.9E+00	1.6E+00	5.8E+00
chromium vi	NA	1.4E+01	NA	1.5E+01
cobalt	NA	1.2E+01	NA	NA
copper	1.3E+01	1.5E+01	NA	2.7E+01
lead	3.2E+01	2.4E+01	2.7E+01	6.9E+02
manganese	NA	1.1E+03	1.2E+03	1.4E+03
manganese	NA	1.1E+03	1.2E+03	1.4E+03
mercury	NA	NA	NA	1.2E-01
molybdenum	8.5E+00	1.3E+01	8.3E+00	7.5E+00
nickel	1.4E+01	1.7E+01	1.2E+01	2.0E+01
selenium	8.0E-01	7.7E-01	NA	8.4E-01
silver	8.7E+00	NA	NA	9.7E+00
thallium	NA	6.7E-01	7.5E-01	2.8E-01
uranium-total	1.2E+01	1.9E+01	6.4E+01	1.8E+02
vanadium	NA	NA	3.3E+01	2.6E+01
zinc	5.8E+01	7.9E+01	NA	1.9E+02

NA - Constituent is not a CPC for this location.

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TABLE A.3-5
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE SOIL, OFF-PROPERTY, CURRENT LAND USE

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	7.5E-01	8.6E-01	6.0E-01	7.5E-01	8.7E-01	7.0E-01
Np_{237+1d}	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	NA	NA	1.2E+00	NA	NA	1.2E+00
Ru_{106}	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.4E+00	1.0E+00	1.9E+00	3.6E+00	5.2E+00	2.2E+00
Tc_{99}	3.5E+00	1.3E+00	NA	NA	1.8E+00	NA
Th_{228+7d}	1.7E+00	1.2E+00	1.3E+00	1.5E+00	NA	1.3E+00
Th_{230}	5.5E+00	2.5E+00	2.0E+00	NA	1.8E+00	2.0E+00
Th_{232}	1.6E+00	NA	NA	NA	NA	NA
U_{234}	1.5E+01	3.8E+00	2.9E+00	2.6E+00	6.7E+00	4.2E+00
$U_{235/236}$	3.6E+00	NA	NA	NA	7.0E-01	NA
U_{238+2d}	2.1E+01	4.2E+00	2.7E+00	3.6E+00	6.8E+00	3.6E+00
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
benzene	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	7.5E-02	NA
carbazole	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E-03	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.7E-02	NA	NA	NA	1.1E-01	NA
benzo(a)pyrene	4.7E-02	NA	NA	NA	1.1E-01	NA
benzo(b)fluoranthene	5.5E-02	NA	NA	NA	1.1E-01	NA
benzo(k)fluoranthene	6.4E-02	NA	NA	NA	1.5E-01	NA
chrysene	6.6E-02	NA	NA	NA	1.6E-01	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	6.7E-02	NA
fluoranthene	1.2E-01	NA	NA	NA	3.9E-01	NA
phenanthrene	5.9E-02	NA	NA	NA	2.7E-01	NA
pyrene	1.1E-01	NA	NA	NA	2.8E-01	NA
aroclor-1254	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA

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TABLE A.3-5
(con't)

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	4.2E-01	4.2E-01	NA	NA	4.3E-01	NA
aluminum	1.9E+04	1.2E+04	NA	NA	9.1E+03	NA
antimony	2.9E+00	NA	NA	NA	NA	NA
arsenic	NA	NA	NA	NA	NA	NA
barium	2.4E+02	1.3E+02	NA	NA	1.2E+02	NA
beryllium	1.4E+00	7.4E-01	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.9E+00	1.7E+00	NA	NA	NA	NA
chromium vi	2.4E+01	1.7E+01	NA	NA	NA	NA
cobalt	2.2E+01	1.6E+01	NA	NA	NA	NA
copper	1.2E+01	2.1E+01	NA	NA	1.7E+01	NA
lead	4.5E+01	2.8E+01	NA	NA	2.8E+01	NA
manganese	4.4E+03	NA	NA	NA	1.5E+03	NA
manganese	4.4E+03	NA	NA	NA	1.5E+03	NA
mercury	NA	NA	NA	NA	NA	NA
molybdenum	NA	1.2E+01	NA	NA	NA	NA
nickel	2.4E+01	2.2E+01	NA	NA	NA	NA
selenium	5.5E-01	3.2E-01	NA	NA	NA	NA
silver	1.8E+00	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	3.2E-01	NA
uranium-total	6.8E+01	1.3E+01	1.2E+01	1.1E+01	2.0E+01	1.1E+01
vanadium	3.9E+01	NA	NA	NA	2.7E+01	NA
zinc	4.3E+02	8.0E+01	NA	NA	1.2E+02	NA

NA – Constituent is not a CPC for this location.

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TABLE A.3-6
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE SOIL ON-PROPERTY, FUTURE LAND USE

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	9.0E-01	7.7E-01	8.0E-01	5.1E-01	7.7E-01	1.1E+00	NA
Np_{237+1d}	3.7E-01	8.1E-01	NA	NA	NA	1.1E+00	NA
Pu_{238}	3.9E+00	NA	2.6E-01	NA	NA	3.0E-01	NA
$Pu_{239/240}$	1.1E+00	NA	4.3E-01	6.0E-01	NA	3.0E-01	1.7E+00
Ra_{226+8d}	2.4E+00	NA	2.5E+00	NA	NA	3.5E+01	NA
Ru_{106}	NA	NA	NA	NA	NA	3.1E+00	NA
Sr_{90+1d}	1.5E+00	1.4E+00	1.9E+00	2.1E+00	1.6E+00	1.5E+00	1.7E+00
Tc_{99}	5.4E+00	1.6E+00	2.3E+01	NA	1.3E+00	1.2E+00	NA
Th_{230}	6.4E+01	1.8E+00	1.2E+01	1.8E+00	2.3E+00	3.6E+01	NA
$Th_{232+10d}$	2.7E+01	NA	2.7E+00	NA	NA	2.5E+00	NA
U_{234}	4.4E+02	4.0E+00	1.8E+02	6.7E+00	1.9E+01	3.3E+01	3.6E+00
$U_{235/236}$	3.7E+01	7.0E-01	6.2E+00	8.0E-01	2.5E+00	1.4E+00	8.1E-01
U_{238+2d}	5.6E+02	5.1E+00	9.8E+01	4.7E+00	3.6E+01	7.2E+01	2.7E+00
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
benzene	2.6E-03	NA	NA	NA	NA	3.0E-03	NA
bis(2-ethylhexyl)phthalate	2.9E-01	5.9E-01	9.6E-02	5.1E-02	7.0E-01	3.7E+00	6.2E-02
carbazole	1.5E-01	NA	NA	NA	7.0E-03	NA	NA
chloroform	9.2E-03	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	5.1E-03	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	4.1E-03	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	5.7E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-02	NA	3.3E-02	NA	NA	2.8E-02	NA
tetrachloroethene	2.2E-02	NA	1.8E-02	3.0E-03	2.0E-03	NA	NA
trichloroethene	2.1E-02	4.0E-03	NA	2.0E-03	NA	6.0E-03	NA
1,1,1-trichloroethane	2.0E-02	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.2E-01	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.4E+00	4.8E-02	3.7E-01	NA	6.7E-02	1.3E+00	NA
benzo(a)pyrene	1.1E+00	NA	2.9E-01	NA	6.1E-02	9.8E-01	NA
benzo(b)fluoranthene	1.2E+00	5.6E-02	9.9E-01	NA	6.6E-02	2.4E+00	NA
benzo(k)fluoranthene	9.7E-01	6.0E-02	1.8E-01	NA	7.7E-02	6.1E-02	NA
chrysene	1.3E+00	7.7E-02	5.9E-01	NA	8.8E-02	1.1E+00	NA
dibenzo(a,h)anthracene	3.6E-01	NA	4.0E-02	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.4E-01	NA	1.4E-01	NA	5.0E-02	4.0E-02	NA
fluoranthene	2.7E+00	1.6E-01	4.9E-01	NA	1.9E-01	2.5E+00	NA
phenanthrene	2.4E+00	9.5E-02	2.7E-01	NA	1.1E-01	6.8E+00	NA
pyrene	2.1E+00	1.3E-01	8.1E-01	5.9E-02	1.5E-01	2.7E+00	NA
aroclor-1254	2.3E+00	NA	1.5E-02	NA	NA	1.4E-02	NA
aroclor-1260	5.4E-01	NA	1.3E-01	NA	NA	NA	NA
heptachlorodibenzofuran	9.2E-06	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.1E-05	NA	NA	NA	NA	9.0E-04	NA
octachlorodibenzofuran	3.7E-05	NA	NA	NA	NA	NA	NA

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TABLE A.3–6
(con't)

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	8.5E−01	5.3E−01	5.4E−01	6.0E−01	4.4E−01	NA	2.0E+00
aluminum	1.2E+04	9.9E+03	1.1E+04	8.3E+03	9.5E+03	1.0E+04	8.3E+03
antimony	2.4E+01	3.2E+00	5.1E+00	1.1E+01	NA	3.0E+01	4.1E+00
arsenic	1.1E+01	NA	NA	NA	NA	1.0E+01	1.3E+01
barium	2.3E+02	1.0E+02	1.3E+02	NA	9.9E+01	7.0E+01	8.9E+01
beryllium	1.2E+00	1.6E+00	9.7E−01	1.4E+00	1.7E+00	7.4E−01	7.3E−01
boron	NA	1.4E+01	NA	NA	NA	NA	NA
cadmium	5.3E+00	1.7E+00	2.4E+00	2.8E+00	1.3E+00	5.8E+00	NA
chromium vi	2.7E+01	1.4E+01	1.6E+01	1.3E+01	NA	1.5E+01	4.3E+01
cobalt	1.2E+01	1.2E+01	1.4E+01	NA	NA	NA	NA
copper	4.3E+01	1.6E+01	2.0E+01	1.4E+01	1.4E+01	1.9E+01	1.8E+01
lead	1.2E+02	2.3E+01	7.8E+01	6.2E+01	NA	1.9E+01	2.2E+03
manganese	5.8E+02	9.5E+02	1.8E+03	NA	1.2E+03	NA	9.3E+02
manganese	5.8E+02	9.5E+02	1.8E+03	NA	1.2E+03	NA	9.3E+02
mercury	6.7E−01	NA	1.2E−01	NA	NA	NA	6.3E+00
molybdenum	7.6E+00	1.2E+01	1.1E+01	8.2E+00	NA	5.2E+00	8.5E+00
nickel	2.6E+01	1.7E+01	2.0E+01	1.5E+01	NA	2.2E+01	NA
selenium	8.7E−01	7.7E−01	5.3E−01	8.0E−01	NA	8.4E−01	NA
silver	4.7E+00	3.9E+00	1.3E+00	8.7E+00	4.8E−01	4.5E+00	NA
thallium	4.6E−01	6.7E−01	7.1E−01	NA	NA	NA	NA
uranium−total	9.2E+02	1.5E+01	2.4E+02	1.4E+01	9.5E+01	8.1E+01	1.9E+01
vanadium	2.7E+01	NA	3.1E+01	NA	NA	2.4E+01	NA
zinc	1.4E+02	6.8E+01	3.1E+02	6.2E+01	8.5E+01	8.0E+01	8.7E+01

NA – Constituent is not a CPC for this location.

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TABLE A.3-7
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE SOIL, OFF-PROPERTY, FUTURE LAND USE

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	7.5E-01	8.6E-01	6.0E-01	7.5E-01	8.7E-01	7.0E-01
Np_{237+1d}	NA	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA
Ru_{106}	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.4E+00	1.0E+00	1.9E+00	3.6E+00	5.2E+00	2.2E+00
Tc_{99}	3.5E+00	1.3E+00	NA	NA	1.8E+00	NA
Th_{230}	5.5E+00	2.5E+00	2.0E+00	NA	1.8E+00	2.0E+00
$Th_{232+10d}$	1.6E+00	NA	NA	NA	NA	NA
U_{234}	1.5E+01	3.8E+00	2.9E+00	2.6E+00	6.7E+00	4.2E+00
$U_{235/236}$	3.6E+00	NA	NA	NA	7.0E-01	NA
U_{238+2d}	2.1E+01	4.2E+00	2.7E+00	3.6E+00	6.8E+00	3.6E+00
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
benzene	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	7.5E-02	NA
carbazole	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E-03	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.7E-02	NA	NA	NA	1.1E-01	NA
benzo(a)pyrene	4.7E-02	NA	NA	NA	1.1E-01	NA
benzo(b)fluoranthene	5.5E-02	NA	NA	NA	1.1E-01	NA
benzo(k)fluoranthene	6.4E-02	NA	NA	NA	1.5E-01	NA
chrysene	6.6E-02	NA	NA	NA	1.6E-01	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	6.7E-02	NA
fluoranthene	1.2E-01	NA	NA	NA	3.9E-01	NA
phenanthrene	5.9E-02	NA	NA	NA	2.7E-01	NA
pyrene	1.1E-01	NA	NA	NA	2.8E-01	NA
aroclor-1254	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA

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TABLE A.3-7
(con't)

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	4.2E-01	4.2E-01	NA	NA	4.3E-01	NA
aluminum	1.9E+04	1.2E+04	NA	NA	9.1E+03	NA
antimony	2.9E+00	NA	NA	NA	NA	NA
arsenic	NA	NA	NA	NA	NA	NA
barium	2.4E+02	1.3E+02	NA	NA	1.2E+02	NA
beryllium	1.4E+00	7.4E-01	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.9E+00	1.7E+00	NA	NA	NA	NA
chromium vi	2.4E+01	1.7E+01	NA	NA	NA	NA
cobalt	2.2E+01	1.6E+01	NA	NA	NA	NA
copper	1.2E+01	2.1E+01	NA	NA	1.7E+01	NA
lead	4.5E+01	2.8E+01	NA	NA	2.8E+01	NA
manganese	4.4E+03	NA	NA	NA	1.5E+03	NA
manganese	4.4E+03	NA	NA	NA	1.5E+03	NA
mercury	NA	NA	NA	NA	NA	NA
molybdenum	NA	1.2E+01	NA	NA	NA	NA
nickel	2.4E+01	2.2E+01	NA	NA	NA	NA
selenium	5.5E-01	3.2E-01	NA	NA	NA	NA
silver	1.8E+00	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	3.2E-01	NA
uranium-total	6.8E+01	1.3E+01	1.2E+01	1.1E+01	2.0E+01	1.1E+01
vanadium	3.9E+01	NA	NA	NA	2.7E+01	NA
zinc	4.3E+02	8.0E+01	NA	NA	1.2E+02	NA

NA – Constituent is not a CPC for this location.

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TABLE A.3–8
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SUBSURFACE SOILS, FUTURE LAND USE

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Cs_{137+1d}	2.5E−01	ND	4.9E−01	ND	ND	4.0E−01	ND
Np_{237+1d}	NA	ND	2.9E−01	ND	ND	NA	ND
Pu_{238}	1.1E+00	ND	NA	ND	ND	NA	ND
$Pu_{239/240}$	1.2E+00	ND	NA	ND	ND	1.4E+00	ND
Ra_{226+8d}	2.9E+00	ND	NA	ND	ND	4.6E+00	ND
Sr_{90+1d}	7.0E+00	ND	1.0E+01	ND	ND	1.8E+00	ND
Tc_{99}	2.0E+01	ND	3.6E+00	ND	ND	8.9E+00	ND
Th_{230}	4.9E+00	ND	1.4E+01	ND	ND	1.5E+00	ND
$Th_{232+10d}$	3.0E+00	ND	3.2E+00	ND	ND	NA	ND
U_{234}	9.6E+01	ND	3.3E+01	ND	ND	1.9E+00	ND
$U_{235/236}$	8.0E+00	ND	4.4E+00	ND	ND	5.0E−01	ND
U_{238+2d}	8.9E+01	ND	3.3E+01	ND	ND	7.8E+00	ND
Organic Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
acetone	7.4E−02	ND	NA	ND	ND	7.9E−02	ND
benzene	2.9E−05	ND	NA	ND	ND	NA	ND
bis(2−ethylhexyl)phthalate	8.8E−01	ND	1.8E−01	ND	ND	2.5E+00	ND
di−n−octylphthalate	1.6E−01	ND	NA	ND	ND	NA	ND
carbon tetrachloride	1.9E−03	ND	NA	ND	ND	NA	ND
carbon disulfide	7.1E−03	ND	NA	ND	ND	NA	ND
chloroform	2.2E−03	ND	2.0E−03	ND	ND	NA	ND
1,1−dichloroethane	2.1E−02	ND	6.0E−03	ND	ND	NA	ND
1,1−dichloroethene	1.3E−02	ND	NA	ND	ND	NA	ND
1,2−dichloroethane	1.1E−03	ND	NA	ND	ND	NA	ND
1,2−dichloroethene	3.3E−02	ND	2.0E−03	ND	ND	NA	ND
methylene chloride	2.1E−02	ND	NA	ND	ND	2.7E−02	ND
tetrachloroethene	3.0E−01	ND	2.0E−03	ND	ND	1.0E−03	ND
trichloroethene	3.3E−01	ND	1.0E−03	ND	ND	1.8E−02	ND
1,1,1−trichloroethane	4.2E−02	ND	3.0E−03	ND	ND	2.0E−03	ND
vinyl chloride	4.7E−03	ND	NA	ND	ND	NA	ND
toluene	4.4E−03	ND	2.0E−03	ND	ND	1.4E−02	ND
2−nitroanaline	7.4E−01	ND	NA	ND	ND	NA	ND
n−nitrosodiphenylamine	2.2E−02	ND	NA	ND	ND	NA	ND
n−nitrosodipropylamine	5.4E−03	ND	1.2E−01	ND	ND	NA	ND
benzo(a)anthracene	1.5E−01	ND	NA	ND	ND	NA	ND
benzo(a)pyrene	1.3E−01	ND	1.2E−01	ND	ND	8.6E+00	ND
benzo(b)fluoranthene	2.6E−01	ND	NA	ND	ND	2.3E+01	ND
benzo(k)fluoranthene	1.6E−01	ND	NA	ND	ND	NA	ND
chrysene	1.9E−01	ND	NA	ND	ND	1.7E+01	ND
dibenzo(a,h)anthracene	6.3E−02	ND	NA	ND	ND	1.0E+00	ND
indeno(1,2,3−cd)pyrene	1.2E−01	ND	1.2E−01	ND	ND	4.9E+00	ND
fluoranthene	3.1E−01	ND	NA	ND	ND	3.4E+01	ND
phenanthrene	1.6E−01	ND	NA	ND	ND	1.8E+01	ND
pyrene	3.0E−01	ND	NA	ND	ND	NA	ND
aroclor−1254	2.2E−01	ND	NA	ND	ND	NA	ND
aroclor−1260	6.0E−03	ND	2.7E+00	ND	ND	NA	ND
octachlorodibenzofuran	NA	ND	1.5E−03	ND	ND	NA	ND

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TABLE A.3-8
(con't)

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	3.5E-01	ND	5.0E-01	ND	ND	1.5E+00	ND
aluminum	1.3E+04	ND	2.7E+04	ND	ND	1.6E+04	ND
antimony	1.0E+01	ND	NA	ND	ND	2.2E+01	ND
arsenic	1.0E+01	ND	9.1E+00	ND	ND	3.4E+01	ND
barium	2.0E+02	ND	1.7E+02	ND	ND	1.8E+02	ND
beryllium	1.9E+00	ND	1.1E+00	ND	ND	1.6E+00	ND
cadmium	5.6E+00	ND	3.7E+00	ND	ND	4.3E+00	ND
chromium vi	2.0E+01	ND	3.1E+01	ND	ND	2.3E+01	ND
cobalt	1.5E+01	ND	1.9E+01	ND	ND	2.3E+01	ND
copper	2.2E+01	ND	2.3E+01	ND	ND	4.4E+01	ND
lead	2.3E+01	ND	7.1E+01	ND	ND	6.5E+01	ND
manganese	1.5E+03	ND	9.0E+02	ND	ND	2.2E+03	ND
manganese	1.5E+03	ND	9.0E+02	ND	ND	2.2E+03	ND
mercury	1.3E-01	ND	1.3E-01	ND	ND	NA	ND
molybdenum	4.3E+00	ND	NA	ND	ND	1.1E+01	ND
nickel	3.1E+01	ND	5.0E+01	ND	ND	3.6E+01	ND
selenium	9.4E-01	ND	NA	ND	ND	3.3E+00	ND
silver	8.4E+00	ND	5.6E+00	ND	ND	1.0E+01	ND
thallium	4.6E-01	ND	NA	ND	ND	NA	ND
uranium-total	3.4E+02	ND	2.1E+02	ND	ND	5.4E+01	ND
vanadium	2.9E+01	ND	5.1E+01	ND	ND	3.9E+01	ND
zinc	1.8E+02	ND	9.0E+01	ND	ND	1.0E+02	ND

NA – Constituent is not a CPC for this location.
ND – No analytical data exists for calculation of exposure point concentrations for subsurface soils in these areas.

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TABLE A.3-9
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR AIR
CURRENT LAND USE, ON-PROPERTY RECEPTOR LOCATIONS

Constituents	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10
Radionuclides	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)
Cs_{137+1d}	1.6E-07	1.9E-07	1.8E-07	1.3E-07	1.0E-07	7.7E-08	7.2E-08	2.3E-08	3.9E-08	3.6E-08
Np_{237+1d}	5.3E-08	1.1E-07	6.9E-08	5.5E-08	2.4E-08	2.0E-08	1.7E-08	6.0E-09	1.3E-08	1.3E-08
Pu_{238}	3.3E-06	3.0E-06	1.1E-06	7.8E-07	5.4E-07	6.0E-07	4.1E-07	1.4E-07	2.0E-07	6.3E-07
$Pu_{239/240}$	3.4E-07	3.8E-07	2.0E-07	2.3E-07	2.3E-07	1.1E-07	7.8E-08	3.3E-08	4.4E-08	7.3E-08
Ra_{226+5d}	2.2E-05	3.4E-05	2.0E-04	6.1E-05	3.3E-05	2.0E-05	6.8E-05	4.5E-06	9.3E-06	8.8E-06
Ra_{228+1d}	1.9E-05	2.1E-05	1.9E-05	6.0E-06	4.9E-06	1.4E-05	1.1E-05	8.4E-07	1.5E-06	5.0E-06
Ru_{106}	5.0E-08	1.5E-07	7.7E-08	3.2E-07	8.5E-08	2.9E-08	2.9E-08	2.4E-08	8.2E-08	2.2E-08
Sr_{90+1d}	3.5E-07	4.6E-07	5.7E-07	3.7E-07	2.7E-07	3.4E-07	2.4E-07	3.7E-08	6.7E-08	9.5E-08
Tc_{99}	1.9E-06	2.2E-06	2.8E-06	1.6E-06	2.0E-06	6.6E-06	2.1E-06	3.0E-07	4.0E-07	8.6E-07
Th_{228+7d}	4.6E-06	4.7E-06	3.4E-06	2.3E-06	2.1E-06	2.3E-06	1.6E-06	4.7E-07	6.5E-07	1.1E-06
Th_{230}	9.2E-05	1.3E-04	2.0E-04	4.9E-05	2.5E-05	1.8E-04	1.4E-04	4.9E-06	1.2E-05	3.8E-05
Th_{232}	1.1E-05	9.2E-06	8.1E-06	2.7E-06	2.0E-06	6.4E-06	4.0E-06	5.6E-07	9.2E-07	2.2E-06
U_{234}	3.1E-04	3.4E-04	1.8E-04	1.2E-04	7.5E-05	1.5E-04	7.4E-05	1.4E-05	1.8E-05	6.7E-05
$U_{235/236}$	2.4E-05	2.8E-05	1.5E-05	1.1E-05	6.3E-06	9.8E-06	5.4E-06	1.3E-06	1.8E-06	5.1E-06
U_{238+2d}	3.3E-04	3.6E-04	2.0E-04	1.3E-04	8.2E-05	1.3E-04	7.4E-05	1.8E-05	2.4E-05	6.9E-05
Rn_{222+4d}	3.7E+00	5.7E+00	4.7E+01	4.9E+01	1.6E+01	6.7E+00	1.1E+01	3.1E+00	3.3E+00	2.0E+00
Organic Chemicals	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
benzene	1.3E-15	2.0E-15	1.1E-14	3.8E-15	1.2E-14	1.2E-15	3.3E-15	9.2E-16	5.7E-16	5.0E-16
bis(2-ethylhexyl)phthalate	2.3E-12	3.3E-12	6.8E-12	2.7E-12	6.0E-12	1.4E-12	2.7E-12	7.4E-13	7.0E-13	9.7E-13
carbazole	1.2E-12	1.3E-12	5.0E-12	8.0E-13	7.1E-13	1.0E-12	1.2E-12	9.2E-14	1.8E-13	2.8E-13
chloroform	1.8E-14	1.8E-14	5.5E-14	1.7E-14	5.5E-14	8.1E-15	1.6E-14	4.2E-15	2.8E-15	3.4E-15
methylene chloride	1.4E-12	2.1E-12	2.1E-11	1.9E-12	9.4E-13	1.3E-12	3.4E-12	1.5E-13	4.9E-13	4.9E-13
tetrachloroethene	3.9E-07	5.4E-07	9.3E-07	1.5E-06	2.8E-06	3.6E-07	7.5E-07	3.9E-06	1.8E-06	2.4E-07
trichloroethene	7.8E-07	1.1E-06	1.9E-06	3.0E-06	5.6E-06	7.3E-07	1.5E-06	7.8E-06	3.7E-06	4.9E-07
n-nitrosodiphenylamine	7.3E-13	1.7E-12	2.4E-12	6.9E-12	2.7E-12	5.1E-13	7.2E-13	5.9E-13	1.1E-12	3.0E-13
n-nitrosodipropylamine	2.5E-14	3.9E-14	2.2E-13	7.4E-14	2.3E-13	2.3E-14	6.4E-14	1.8E-14	1.1E-14	9.7E-15
benzo(a)anthracene	9.5E-12	1.8E-11	4.9E-11	1.2E-11	1.8E-11	6.3E-12	1.1E-11	1.9E-12	2.4E-12	2.9E-12
benzo(a)pyrene	1.1E-11	1.9E-11	6.0E-11	1.4E-11	2.4E-11	7.0E-12	1.3E-11	2.3E-12	2.8E-12	3.2E-12
benzo(b)fluoranthene	1.1E-11	2.1E-11	4.3E-11	1.5E-11	3.1E-11	7.7E-12	1.2E-11	2.9E-12	2.8E-12	3.3E-12
benzo(k)fluoranthene	9.1E-12	1.4E-11	5.4E-11	1.4E-11	2.6E-11	6.5E-12	1.3E-11	2.5E-12	2.7E-12	2.7E-12
chrysene	9.7E-12	1.8E-11	3.1E-11	1.3E-11	2.5E-11	6.0E-12	9.3E-12	2.5E-12	2.4E-12	3.0E-12
dibenzo(a,h)anthracene	3.1E-12	5.4E-12	2.0E-11	4.0E-12	8.2E-12	2.3E-12	4.5E-12	7.3E-13	7.9E-13	9.5E-13
indeno(1,2,3-cd)pyrene	7.0E-12	1.3E-11	2.4E-11	9.9E-12	2.0E-11	4.7E-12	7.7E-12	1.8E-12	1.8E-12	2.1E-12
aroclor-1254	2.9E-11	3.9E-11	3.6E-11	2.0E-11	1.7E-11	9.0E-12	1.8E-11	2.3E-12	3.3E-12	6.5E-12
aroclor-1260	1.5E-13	2.4E-13	1.3E-12	4.5E-13	1.4E-12	1.4E-13	4.0E-13	1.1E-13	6.8E-14	6.0E-14
4,4-dde	6.9E-14	9.6E-14	4.8E-14	3.8E-14	2.0E-14	1.6E-14	1.4E-14	4.0E-15	5.6E-15	1.5E-14
4,4-ddt	4.1E-14	6.1E-14	1.3E-13	6.6E-14	1.3E-13	1.8E-14	3.8E-14	1.2E-14	1.0E-14	1.1E-14
chlordane	7.6E-15	1.3E-14	9.0E-15	2.9E-14	9.1E-15	2.8E-15	2.9E-15	2.4E-15	4.6E-15	2.1E-15
dieldrin	1.7E-14	2.5E-14	1.4E-14	2.1E-14	8.3E-15	4.5E-15	4.1E-15	1.9E-15	3.3E-15	3.9E-15
octachlorodibenzo-p-dioxi	6.1E-16	1.3E-15	2.5E-15	5.1E-15	3.0E-15	4.5E-16	7.7E-16	4.9E-16	8.1E-16	2.5E-16
octachlorodibenzofuran	3.2E-16	5.0E-16	2.8E-15	9.4E-16	3.0E-15	2.9E-16	8.2E-16	2.3E-16	1.4E-16	1.2E-16

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TABLE A.3–9
(con't)

Constituents	Area 1	Area 2	Area 3	Area 4	Area 5	Area 6	Area 7	Area 8	Area 9	Area 10
Inorganics	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
cyanide	1.3E−10	1.5E−10	1.3E−10	1.4E−10	9.3E−11	1.1E−10	7.6E−11	2.9E−11	4.4E−11	8.4E−11
aluminum	1.9E−06	2.6E−06	2.3E−06	3.2E−06	2.0E−06	1.5E−06	1.2E−06	7.1E−07	1.4E−06	1.1E−06
antimony	3.5E−09	5.5E−09	3.9E−09	8.6E−09	3.6E−09	2.6E−09	1.9E−09	1.5E−09	4.1E−09	1.7E−09
arsenic	2.0E−09	2.8E−09	2.3E−09	2.9E−09	1.6E−09	1.6E−09	1.3E−09	7.0E−10	2.6E−09	1.1E−09
barium	3.4E−08	5.5E−08	3.8E−08	4.6E−08	2.5E−08	2.0E−08	1.8E−08	7.9E−09	1.5E−08	1.4E−08
beryllium	2.2E−10	3.2E−10	3.0E−10	2.9E−10	1.9E−10	1.8E−10	1.6E−10	7.4E−11	1.3E−10	1.2E−10
cadmium	7.7E−10	1.0E−09	1.1E−09	1.5E−09	1.0E−09	7.2E−10	6.1E−10	4.1E−10	8.2E−10	4.5E−10
chromium vi	3.9E−09	5.5E−09	5.3E−09	6.5E−09	3.8E−09	3.3E−09	2.8E−09	1.4E−09	2.6E−09	2.1E−09
cobalt	2.0E−09	2.8E−09	2.5E−09	3.2E−09	2.1E−09	1.6E−09	1.3E−09	8.0E−10	1.5E−09	1.1E−09
copper	8.4E−09	8.7E−09	1.1E−08	1.0E−08	6.3E−09	6.6E−09	5.8E−09	1.9E−09	3.4E−09	5.5E−09
lead	1.8E−07	1.3E−07	6.9E−08	3.7E−08	2.9E−08	1.3E−07	5.5E−08	8.0E−09	1.1E−08	1.4E−07
manganese	1.9E−07	2.7E−07	2.4E−07	2.6E−07	1.7E−07	1.7E−07	1.3E−07	6.7E−08	1.7E−07	1.1E−07
manganese	1.9E−07	2.7E−07	2.4E−07	2.6E−07	1.7E−07	1.7E−07	1.3E−07	6.7E−08	1.7E−07	1.1E−07
mercury	1.1E−10	1.9E−10	1.2E−10	1.4E−10	5.5E−11	6.7E−11	5.1E−11	1.3E−11	2.6E−11	4.0E−11
molybdenum	1.8E−09	2.5E−09	2.3E−09	2.3E−09	1.7E−09	1.3E−09	1.2E−09	5.8E−10	7.8E−10	9.2E−10
nickel	4.4E−09	6.3E−09	6.1E−09	7.4E−09	4.6E−09	3.7E−09	3.2E−09	1.9E−09	3.6E−09	2.3E−09
selenium	2.1E−10	3.7E−10	2.3E−10	4.1E−10	2.1E−10	9.6E−11	9.7E−11	6.6E−11	1.2E−10	7.9E−11
silver	1.7E−09	2.4E−09	1.9E−09	2.8E−09	1.7E−09	1.1E−09	9.7E−10	6.6E−10	1.4E−09	8.8E−10
thallium	5.8E−11	8.4E−11	8.9E−11	1.1E−10	9.2E−11	4.7E−11	4.8E−11	3.3E−11	5.8E−11	3.1E−11
uranium−total	9.5E−07	8.7E−07	5.6E−07	4.1E−07	2.5E−07	3.2E−07	1.9E−07	5.2E−08	6.9E−08	2.0E−07
vanadium	4.9E−09	6.6E−09	6.2E−09	7.7E−09	4.8E−09	3.9E−09	3.2E−09	1.8E−09	3.4E−09	2.7E−09
zinc	2.5E−08	3.5E−08	5.8E−08	4.3E−08	6.9E−08	2.2E−08	3.2E−08	2.4E−08	1.4E−08	1.3E−08

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TABLE A.3-10
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR AIR CURRENT LAND USE, OFF-PROPERTY RECEPTOR LOCATIONS

Constituents	Southern Fenceline	Eastern Fenceline	Northern Fenceline	Western Fenceline	Northeast Of FEMP	Southeast Of FEMP
Radionuclides	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)
Cs_{137+1d}	1.4E-08	5.1E-08	1.8E-08	1.3E-08	3.3E-08	1.6E-08
Np_{237+1d}	4.9E-09	1.1E-08	5.6E-09	4.0E-09	9.8E-09	5.3E-09
Pu_{238}	1.8E-07	3.4E-07	1.3E-07	1.1E-07	2.4E-07	2.1E-07
$Pu_{239/240}$	2.4E-08	6.6E-08	2.7E-08	1.7E-08	4.2E-08	2.8E-08
Ra_{226+5d}	4.8E-06	2.5E-05	8.7E-06	4.1E-06	2.9E-05	5.4E-06
Ra_{228+1d}	2.1E-06	1.1E-05	1.1E-06	8.2E-07	3.6E-06	2.2E-06
Ru_{106}	9.5E-09	1.8E-08	1.8E-08	1.2E-08	1.9E-08	1.0E-08
Sr_{90+1d}	3.9E-08	2.2E-07	4.0E-08	2.4E-08	9.6E-08	4.8E-08
Tc_{99}	3.2E-07	3.7E-06	2.6E-07	1.8E-07	6.8E-07	5.6E-07
Th_{228+7d}	3.8E-07	1.5E-06	3.7E-07	2.8E-07	6.6E-07	4.4E-07
Th_{230}	2.0E-05	1.4E-04	8.2E-06	6.4E-06	3.7E-05	2.0E-05
Th_{232}	8.0E-07	3.9E-06	5.5E-07	4.4E-07	1.4E-06	9.4E-07
U_{234}	2.1E-05	8.2E-05	1.5E-05	1.1E-05	3.3E-05	2.6E-05
$U_{235/236}$	1.6E-06	5.3E-06	1.3E-06	9.5E-07	2.7E-06	2.0E-06
U_{238+2d}	2.1E-05	7.0E-05	1.7E-05	1.3E-05	3.5E-05	2.6E-05
Rn_{222+4d}	6.4E-01	4.9E+00	2.3E+00	1.4E+00	NA	NA
Organic Chemi	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
benzene	2.6E-16	1.1E-15	9.0E-16	2.6E-16	1.6E-15	3.4E-16
bis(2-ethylhex	3.6E-13	1.3E-12	6.9E-13	3.2E-13	1.4E-12	4.6E-13
carbazole	1.1E-13	7.9E-13	1.7E-13	7.0E-14	5.2E-13	1.8E-13
chloroform	1.5E-15	6.1E-15	4.3E-15	1.3E-15	8.1E-15	2.0E-15
methylene chlo	2.4E-13	1.3E-12	4.8E-13	1.7E-13	1.6E-12	3.6E-13
tetrachloroethe	1.5E-07	3.6E-07	2.0E-06	7.2E-07	5.7E-07	1.6E-07
trichloroethene	3.0E-07	7.3E-07	4.0E-06	1.4E-06	1.1E-06	3.1E-07
n-nitrosodiph	1.5E-13	3.6E-13	4.2E-13	1.9E-13	4.2E-13	1.6E-13
n-nitrosodipro	5.1E-15	2.2E-14	1.7E-14	5.0E-15	3.1E-14	6.7E-15
benzo(a)anthra	1.2E-12	5.0E-12	2.4E-12	8.9E-13	5.4E-12	1.6E-12
benzo(a)pyrene	1.4E-12	5.7E-12	2.9E-12	1.0E-12	6.6E-12	1.8E-12
benzo(b)fluora	1.4E-12	5.7E-12	3.0E-12	1.1E-12	5.9E-12	1.8E-12
benzo(k)fluora	1.2E-12	5.7E-12	2.9E-12	1.0E-12	6.5E-12	1.7E-12
chrysene	1.2E-12	4.6E-12	2.5E-12	9.0E-13	4.6E-12	1.5E-12
dibenzo(a,h)an	4.2E-13	1.9E-12	9.2E-13	3.2E-13	2.2E-12	5.8E-13
indeno(1,2,3-c	8.7E-13	3.7E-12	1.9E-12	6.8E-13	3.8E-12	1.2E-12
aroclor-1254	2.4E-12	7.9E-12	3.3E-12	1.4E-12	9.5E-12	2.9E-12
aroclor-1260	3.1E-14	1.3E-13	1.1E-13	3.1E-14	1.9E-13	4.1E-14
4,4-dde	4.7E-15	9.2E-15	4.8E-15	2.4E-15	8.5E-15	5.6E-15
4,4-ddt	4.7E-15	1.5E-14	1.1E-14	3.8E-15	1.9E-14	5.8E-15
chlordane	8.6E-16	1.8E-15	1.8E-15	8.3E-16	1.8E-15	9.4E-16
dieldrin	1.4E-15	2.7E-15	1.8E-15	8.6E-16	2.5E-15	1.6E-15
octachlorodibe	1.3E-16	3.4E-16	3.7E-16	1.5E-16	4.2E-16	1.4E-16
octachlorodibe	6.5E-17	2.8E-16	2.2E-16	6.4E-17	4.0E-16	8.6E-17

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TABLE A.3-10
(con't)

Constituents	Southern Fenceline	Eastern Fenceline	Northern Fenceline	Western Fenceline	Northeast Of FEMP	Southeast Of FEMP
Inorganics	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
cyanide	1.9E-11	7.3E-11	1.9E-11	1.2E-11	3.7E-11	3.7E-11
aluminum	3.2E-07	1.0E-06	4.2E-07	3.0E-07	6.7E-07	5.0E-07
antimony	5.3E-10	1.7E-09	9.0E-10	7.7E-10	1.0E-09	7.8E-10
arsenic	3.4E-10	1.1E-09	4.5E-10	4.3E-10	6.8E-10	5.2E-10
barium	4.5E-09	1.4E-08	5.4E-09	3.7E-09	9.9E-09	6.5E-09
beryllium	3.9E-11	1.2E-10	4.5E-11	3.3E-11	8.6E-11	5.4E-11
cadmium	1.3E-10	4.9E-10	2.3E-10	1.6E-10	3.2E-10	2.0E-10
chromium vi	6.1E-10	2.2E-09	8.4E-10	6.0E-10	1.5E-09	9.5E-10
cobalt	3.3E-10	1.1E-09	4.6E-10	3.3E-10	7.2E-10	5.0E-10
copper	1.2E-09	4.6E-09	1.3E-09	8.6E-10	3.3E-09	2.4E-09
lead	2.0E-08	7.8E-08	7.6E-09	5.4E-09	2.3E-08	5.8E-08
manganese	3.3E-08	1.1E-07	4.1E-08	3.3E-08	6.8E-08	4.9E-08
manganese	3.3E-08	1.1E-07	4.1E-08	3.3E-08	6.8E-08	4.9E-08
mercury	1.2E-11	4.3E-11	1.2E-11	8.3E-12	2.7E-11	1.7E-11
molybdenum	2.3E-10	8.8E-10	3.5E-10	2.0E-10	6.5E-10	4.1E-10
nickel	7.0E-10	2.5E-09	1.1E-09	8.0E-10	1.7E-09	1.1E-09
selenium	3.0E-11	6.4E-11	4.2E-11	2.7E-11	6.1E-11	3.7E-11
silver	2.4E-10	7.5E-10	3.8E-10	2.8E-10	5.5E-10	4.0E-10
thallium	9.0E-12	3.4E-11	1.8E-11	1.1E-11	2.7E-11	1.4E-11
uranium-total	6.0E-08	1.9E-07	5.0E-08	3.7E-08	9.5E-08	7.4E-08
vanadium	7.9E-10	2.6E-09	1.1E-09	7.5E-10	1.8E-09	1.2E-09
zinc	4.2E-09	1.8E-08	1.1E-08	4.2E-09	1.8E-08	6.1E-09

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TABLE A.3-11
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR AIR
FUTURE LAND USE, ON-PROPERTY RECEPTOR LOCATIONS

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Radionculides	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)
Cs_{137+1d}	5.0E-06	5.7E-07	2.1E-06	9.5E-07	9.7E-07	8.8E-07	1.0E-06
Np_{237+1d}	2.2E-06	1.5E-07	4.9E-07	3.1E-07	3.7E-07	3.4E-07	3.3E-07
Pu_{238}	6.4E-05	3.5E-06	1.2E-05	1.6E-05	1.9E-05	4.8E-06	1.5E-05
$Pu_{239/240}$	8.8E-06	8.6E-07	2.6E-06	1.9E-06	2.2E-06	1.1E-06	1.9E-06
Ra_{226+8d}	1.3E-03	1.2E-04	1.6E-03	2.4E-04	2.0E-04	2.5E-04	2.7E-04
Ru_{106}	5.1E-06	6.6E-07	9.5E-07	4.7E-07	7.7E-07	2.2E-06	5.3E-07
Sr_{90+1d}	1.1E-05	1.0E-06	6.8E-06	2.4E-06	2.3E-06	1.8E-06	3.1E-06
Tc_{99}	5.9E-05	7.5E-06	6.7E-05	2.0E-05	1.2E-05	9.1E-06	3.7E-05
Th_{230}	2.8E-03	1.3E-04	3.5E-03	9.2E-04	9.5E-04	3.3E-04	1.2E-03
$Th_{232+10d}$	2.1E-04	1.4E-05	1.1E-04	6.0E-05	5.1E-05	2.1E-05	6.8E-05
U_{234}	7.2E-03	3.7E-04	2.2E-03	1.7E-03	1.8E-03	4.8E-04	1.8E-03
$U_{235/236}$	5.9E-04	3.3E-05	1.6E-04	1.3E-04	1.5E-04	4.7E-05	1.4E-04
U_{238+2d}	7.9E-03	4.5E-04	2.2E-03	1.8E-03	2.0E-03	5.7E-04	1.8E-03
Rn_{222+4d}	2.0E+01	3.1E+00	1.1E+01	1.4E+00	1.1E+00	3.3E+00	2.0E+00
Organic Chemicals	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
benzene	7.2E-14	2.5E-14	1.1E-13	1.3E-14	1.1E-14	1.5E-14	1.7E-14
bis(2-ethylhexyl)phthalate	8.3E-11	2.0E-11	8.0E-11	2.1E-11	3.4E-11	1.9E-11	2.3E-11
carbazole	3.4E-11	2.5E-12	3.0E-11	7.4E-12	5.0E-12	5.0E-12	1.0E-11
chloroform	5.1E-13	1.1E-13	5.3E-13	9.4E-14	6.3E-14	7.5E-14	1.1E-13
methylene chloride	6.7E-11	4.2E-12	8.1E-11	1.3E-11	9.1E-12	1.3E-11	1.7E-11
tetrachloroethene	2.3E-05	1.1E-04	2.5E-05	6.0E-06	7.3E-06	5.0E-05	6.4E-06
trichloroethene	4.5E-05	2.1E-04	5.0E-05	1.2E-05	1.5E-05	9.9E-05	1.3E-05
n-nitrosodiphenylamine	8.7E-11	1.6E-11	2.4E-11	7.5E-12	8.8E-12	3.0E-11	8.1E-12
n-nitrosodipropylamine	1.5E-12	4.8E-13	2.1E-12	2.6E-13	2.1E-13	3.0E-13	3.2E-13
benzo(a)anthracene	4.2E-10	5.3E-11	3.1E-10	7.5E-11	7.2E-11	6.6E-11	8.8E-11
benzo(a)pyrene	4.7E-10	6.3E-11	3.7E-10	8.3E-11	7.8E-11	7.5E-11	9.8E-11
benzo(b)fluoranthene	4.9E-10	7.8E-11	3.6E-10	8.6E-11	8.1E-11	7.5E-11	1.0E-10
benzo(k)fluoranthene	3.9E-10	6.7E-11	3.8E-10	7.2E-11	6.2E-11	7.2E-11	8.8E-11
chrysene	4.3E-10	6.6E-11	2.9E-10	7.5E-11	7.8E-11	6.5E-11	8.6E-11
dibenzo(a,h)anthracene	1.4E-10	2.0E-11	1.3E-10	2.5E-11	2.2E-11	2.1E-11	3.1E-11
indeno(1,2,3-cd)pyrene	3.1E-10	5.0E-11	2.4E-10	5.5E-11	5.4E-11	4.7E-11	6.4E-11
aroclor-1254	8.8E-10	6.2E-11	4.6E-10	1.8E-10	1.7E-10	9.0E-11	1.8E-10
aroclor-1260	8.7E-12	3.0E-12	1.3E-11	1.6E-12	1.3E-12	1.8E-12	2.0E-12
4,4-dde	2.0E-12	1.1E-13	3.9E-13	4.0E-13	4.0E-13	1.5E-13	3.7E-13
4,4-ddt	1.6E-12	3.1E-13	1.2E-12	3.0E-13	2.8E-13	2.7E-13	3.2E-13
chlordane	4.6E-13	6.4E-14	9.6E-14	5.5E-14	6.1E-14	1.2E-13	5.5E-14
dieldrin	6.1E-13	5.1E-14	1.2E-13	1.0E-13	1.1E-13	8.8E-14	1.0E-13
octachlorodibenzo-p-dioxin	6.6E-14	1.3E-14	2.6E-14	6.3E-15	7.0E-15	2.2E-14	7.0E-15
octachlorodibenzofuran	1.8E-14	6.2E-15	2.7E-14	3.3E-15	2.6E-15	3.8E-15	4.1E-15

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TABLE A.3-11
(con't)

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area
Inorganics	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
cyanide	3.9E−09	7.7E−10	2.2E−09	1.3E−09	9.6E−10	1.2E−09	2.3E−09
aluminum	7.2E−05	1.9E−05	3.6E−05	2.0E−05	1.9E−05	3.7E−05	2.9E−05
antimony	1.6E−07	4.0E−08	5.7E−08	3.1E−08	3.7E−08	1.1E−07	4.6E−08
arsenic	7.2E−08	1.9E−08	3.6E−08	2.0E−08	2.3E−08	7.0E−08	3.0E−08
barium	1.3E−06	2.1E−07	5.0E−07	2.9E−07	3.1E−07	4.0E−07	3.9E−07
beryllium	8.0E−09	2.0E−09	4.4E−09	2.4E−09	2.4E−09	3.6E−09	3.2E−09
cadmium	3.0E−08	1.1E−08	1.8E−08	7.7E−09	7.7E−09	2.2E−08	1.2E−08
chromium vi	1.5E−07	3.7E−08	7.9E−08	3.8E−08	3.6E−08	7.1E−08	5.7E−08
cobalt	7.5E−08	2.2E−08	3.9E−08	2.0E−08	2.0E−08	4.0E−08	2.9E−08
copper	2.5E−07	5.2E−08	1.6E−07	8.0E−08	5.5E−08	9.1E−08	1.5E−07
lead	2.9E−06	2.2E−07	1.6E−06	1.6E−06	6.0E−07	2.9E−07	3.7E−06
manganese	6.9E−06	1.8E−06	3.8E−06	2.0E−06	2.1E−06	4.5E−06	2.9E−06
manganese	6.9E−06	1.8E−06	3.8E−06	2.0E−06	2.1E−06	4.5E−06	2.9E−06
mercury	4.4E−09	3.4E−10	1.4E−09	8.0E−10	8.8E−10	7.1E−10	1.1E−09
molybdenum	6.3E−08	1.6E−08	3.4E−08	1.5E−08	1.4E−08	2.1E−08	2.5E−08
nickel	1.7E−07	5.0E−08	9.1E−08	4.3E−08	4.3E−08	9.7E−08	6.2E−08
selenium	9.5E−09	1.8E−09	2.9E−09	1.8E−09	2.2E−09	3.3E−09	2.1E−09
silver	6.5E−08	1.8E−08	2.8E−08	1.5E−08	1.5E−08	3.7E−08	2.4E−08
thallium	2.4E−09	8.8E−10	1.4E−09	5.4E−10	5.7E−10	1.6E−09	8.4E−10
uranium−total	2.1E−05	1.4E−06	5.7E−06	5.1E−06	5.8E−06	1.7E−06	5.1E−06
vanadium	1.8E−07	4.8E−08	9.3E−08	4.9E−08	4.7E−08	9.2E−08	7.3E−08
zinc	1.0E−06	6.4E−07	9.5E−07	2.4E−07	2.3E−07	3.7E−07	3.5E−07

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TABLE A.3-11b
REPRESENTATIVE AIR CONCENTRATIONS[a] FOR CRITICAL SUBPOPULATIONS
CURRENT LAND USE

Constituent	Crosby School	Morgan School	Elda School	St. John's School	Ross High School	City of Fernald	Ross Day Nursery
Radionuclides (pCi/m^3)							
Cs_{137+1d}	4.8E-09	2.5E-09	6.0E-09	4.5E-09	5.2E-09	4.2E-09	5.7E-09
Np_{237+1d}	1.3E-09	3.4E-10	1.4E-09	8.8E-10	1.2E-09	1.5E-09	1.3E-09
Pu_{238}	3.8E-08	7.1E-09	3.7E-08	2.2E-08	3.0E-08	4.7E-08	3.4E-08
$Pu_{239/240}$	5.5E-09	1.0E-09	5.6E-09	3.3E-09	4.6E-09	6.7E-09	5.3E-09
Ra_{226+5d}	1.1E-06	4.4E-08	1.6E-06	6.0E-07	1.2E-06	1.8E-06	1.5E-06
Ra_{228+1d}	3.2E-07	1.1E-08	3.8E-07	1.6E-07	2.8E-07	5.0E-07	3.5E-07
Ru_{106}	2.5E-09	8.5E-11	2.1E-09	1.0E-09	1.7E-09	3.0E-09	2.0E-09
Sr_{90+1d}	7.6E-09	2.6E-10	8.9E-09	3.8E-09	6.7E-09	1.2E-08	8.3E-09
Tc_{99}	8.2E-08	2.6E-08	1.1E-07	6.4E-08	9.1E-08	1.0E-07	1.1E-07
Th_{228+7d}	1.1E-07	5.4E-08	1.4E-07	1.0E-07	1.2E-07	1.0E-07	1.3E-07
Th_{230}	2.8E-06	1.1E-07	3.9E-06	1.5E-06	2.8E-06	4.6E-06	3.6E-06
Th_{232}	1.9E-07	6.1E-08	2.3E-07	1.4E-07	1.9E-07	2.2E-07	2.1E-07
U_{234}	3.9E-06	2.9E-07	4.1E-06	2.0E-06	3.1E-06	5.7E-06	3.8E-06
$U_{235/236}$	3.4E-07	4.6E-08	3.5E-07	1.9E-07	2.8E-07	4.5E-07	3.3E-07
U_{238+2d}	4.7E-06	1.0E-06	5.0E-06	3.0E-06	4.1E-06	5.9E-06	4.7E-06
Rn_{222}	1.7E-01	7.9E-02	4.3E-01	1.7E-01	2.8E-01	2.0E-01	3.8E-01
Organic Chemicals							
benzene	4.2E-17	1.0E-17	9.6E-17	3.6E-17	6.2E-17	8.8E-17	8.4E-17
chlordane	1.3E-16	1.0E-17	1.9E-16	9.2E-17	1.3E-16	2.5E-16	1.7E-16
chloroform	2.2E-16	1.0E-17	5.0E-16	1.9E-16	3.2E-16	4.8E-16	4.3E-16
methylene chloride	5.0E-14	1.0E-17	1.0E-13	5.0E-14	5.1E-14	5.2E-14	5.1E-14
tetrachloroethene	5.0E-08	1.0E-17	6.2E-08	2.4E-08	4.4E-08	6.0E-08	5.8E-08
trichloroethene	1.0E-07	1.0E-17	1.2E-07	4.8E-08	8.8E-08	1.2E-07	1.2E-07
bis(2-ethylhexyl)phthalate	4.5E-14	1.0E-17	8.7E-14	3.7E-14	5.7E-14	9.7E-14	7.6E-14
carbazole	1.9E-14	1.0E-17	3.8E-14	1.7E-14	2.1E-14	3.0E-14	2.5E-14
benzo(a)anthracene	1.8E-13	1.0E-17	3.7E-13	1.7E-13	2.2E-13	3.3E-13	2.7E-13
benzo(a)pyrene	2.1E-13	1.0E-17	4.4E-13	2.0E-13	2.6E-13	3.8E-13	3.1E-13
benzo(b)fluoranthene	2.0E-13	1.0E-17	4.1E-13	1.7E-13	2.6E-13	4.3E-13	3.3E-13
benzo(k)fluoranthene	2.0E-13	1.0E-17	4.1E-13	1.8E-13	2.5E-13	3.5E-13	3.1E-13
chrysene	1.6E-13	1.0E-17	3.3E-13	1.4E-13	2.1E-13	3.5E-13	2.8E-13
dibenzo(a,h)anthracene	6.7E-14	1.0E-17	1.4E-13	6.3E-14	8.4E-14	1.2E-13	1.0E-13
indeno(1,2,3-cd)pyrene	1.2E-13	1.0E-17	2.5E-13	1.1E-13	1.6E-13	2.7E-13	2.1E-13
aroclor-1254	2.7E-13	1.0E-17	5.7E-13	2.5E-13	3.7E-13	6.5E-13	5.0E-13
aroclor-1260	5.0E-15	1.0E-17	1.2E-14	4.3E-15	7.4E-15	1.1E-14	1.0E-14
4,4-dde	4.9E-16	1.0E-17	8.4E-16	4.2E-16	5.3E-16	1.2E-15	7.2E-16
4,4-ddt	6.5E-16	1.0E-17	1.3E-15	5.4E-16	8.5E-16	1.4E-15	1.2E-15
dieldrin	1.6E-16	1.0E-17	2.6E-16	1.3E-16	1.7E-16	3.5E-16	2.2E-16
n-nitrosodiphenylamine	2.7E-14	1.0E-17	4.1E-14	1.8E-14	2.8E-14	4.8E-14	3.6E-14
n-nitrosodipropylamine	8.2E-16	1.0E-17	1.9E-15	7.0E-16	1.2E-15	1.7E-15	1.6E-15
octachlorodibenzo-p-dioxin	2.2E-17	1.0E-17	3.6E-17	1.6E-17	2.5E-17	4.1E-17	3.2E-17
octachlorodibenzofuran	1.0E-17	1.0E-17	2.4E-17	9.0E-18	1.5E-17	2.2E-17	2.1E-17
Inorganics							
aluminum	6.0E-08	2.2E-09	5.8E-08	2.6E-08	4.5E-08	8.2E-08	5.4E-08
antimony	1.3E-10	4.7E-12	1.1E-10	5.3E-11	8.7E-11	1.6E-10	1.0E-10
arsenic	7.3E-11	2.7E-12	6.4E-11	3.0E-11	5.0E-11	9.2E-11	6.0E-11
barium	8.7E-10	3.0E-11	8.4E-10	3.9E-10	6.5E-10	1.2E-09	7.9E-10
beryllium	6.9E-12	2.4E-13	6.7E-12	3.1E-12	5.2E-12	9.5E-12	6.3E-12
cadmium	2.9E-11	1.1E-12	2.7E-11	1.2E-11	2.1E-11	3.7E-11	2.6E-11
chromium vi	1.2E-10	4.4E-12	1.2E-10	5.5E-11	9.3E-11	1.7E-10	1.1E-10
cobalt	6.4E-11	2.3E-12	6.1E-11	2.8E-11	4.7E-11	8.6E-11	5.7E-11
copper	2.1E-10	7.3E-12	2.3E-10	1.0E-10	1.7E-10	3.1E-10	2.1E-10
cyanide	3.2E-12	1.1E-13	3.4E-12	1.5E-12	2.6E-12	4.8E-12	3.2E-12
lead	2.7E-09	7.7E-11	3.0E-09	1.3E-09	2.2E-09	4.5E-09	2.7E-09
magnesium	1.8E-07	6.1E-09	1.8E-07	8.0E-08	1.4E-07	2.5E-07	1.7E-07
manganese	6.4E-09	2.3E-10	6.1E-09	2.8E-09	4.7E-09	8.5E-09	5.7E-09
mercury	2.4E-12	8.2E-14	2.5E-12	1.1E-12	1.9E-12	3.5E-12	2.3E-12
molybdenum	4.7E-11	1.7E-12	4.9E-11	2.2E-11	3.8E-11	6.7E-11	4.6E-11
nickel	1.5E-10	5.3E-12	1.4E-10	6.4E-11	1.1E-10	2.0E-10	1.3E-10
selenium	5.9E-12	2.1E-13	5.3E-12	2.6E-12	4.2E-12	7.9E-12	5.0E-12
silver	5.1E-11	1.9E-12	4.8E-11	2.2E-11	3.7E-11	6.8E-11	4.5E-11
thallium	2.1E-12	7.8E-14	2.0E-12	9.2E-13	1.6E-12	2.7E-12	1.9E-12
uranium-total	1.3E-08	3.0E-09	1.4E-08	8.5E-09	1.1E-08	1.7E-08	1.3E-08
vanadium	1.5E-10	5.4E-12	1.5E-10	6.7E-11	1.1E-10	2.1E-10	1.4E-10
zinc	9.2E-10	3.4E-11	1.0E-09	4.3E-10	8.0E-10	1.3E-09	9.6E-10

[a] Values used represent modeled average annual air concentrations at point locations.

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TABLE A.3-12
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR AIR FUTURE LAND USE, OFF-PROPERTY RECEPTOR LOCATIONS

Constituents	Southern Fenceline	Eastern Fenceline	Northern Fenceline	Western Fenceline	Northeast Of FEMP	Southeast Of FEMP	At Well 2071	At Well 2119	Near the GMR
Radionculides	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)	(pCi/m³)
Cs_{137+1d}	3.7E-07	1.4E-06	4.8E-07	2.8E-07	9.3E-07	4.3E-07	7.3E-07	7.2E-07	1.4E-08
Np_{237+1d}	1.3E-07	3.0E-07	1.5E-07	9.9E-08	2.7E-07	1.4E-07	1.8E-07	2.3E-07	4.2E-09
Pu_{238}	4.9E-06	9.3E-06	3.5E-06	2.7E-06	6.5E-06	5.7E-06	5.2E-06	6.8E-06	1.2E-07
$Pu_{239/240}$	6.4E-07	1.8E-06	7.1E-07	4.3E-07	1.2E-06	7.6E-07	9.3E-07	1.1E-06	1.9E-08
Ra_{226+8d}	1.3E-04	6.8E-04	2.4E-04	1.1E-04	8.1E-04	1.5E-04	4.7E-04	2.7E-04	7.2E-06
Ru_{106}	2.6E-07	5.0E-07	4.8E-07	3.3E-07	5.4E-07	2.7E-07	3.4E-07	3.9E-07	7.9E-09
Sr_{90+1d}	1.1E-06	6.0E-06	1.1E-06	6.4E-07	2.6E-06	1.3E-06	2.6E-06	2.7E-06	4.4E-08
Tc_{99}	8.6E-06	1.0E-04	7.0E-06	4.3E-06	1.9E-05	1.5E-05	3.4E-05	4.3E-05	5.3E-07
Th_{230}	5.3E-04	3.9E-03	2.2E-04	1.7E-04	9.9E-04	5.5E-04	1.5E-03	1.2E-03	2.1E-05
$Th_{232+10d}$	2.2E-05	1.1E-04	1.5E-05	1.0E-05	4.0E-05	2.5E-05	4.5E-05	4.8E-05	7.7E-07
U_{234}	5.6E-04	2.2E-03	4.0E-04	2.9E-04	9.2E-04	7.1E-04	9.6E-04	1.2E-03	1.8E-05
$U_{235/236}$	4.4E-05	1.4E-04	3.5E-05	2.5E-05	7.3E-05	5.4E-05	6.8E-05	8.6E-05	1.3E-06
U_{238+2d}	5.8E-04	1.9E-03	4.6E-04	3.2E-04	9.7E-04	7.1E-04	9.0E-04	1.1E-03	1.8E-05
Rn_{222+4d}	6.4E-01	4.9E+00	2.3E+00	1.4E+00	0.0E+00	0.0E+00	3.4E+00	2.3E+00	1.4E+00
Organic Chemicals	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
benzene	7.1E-15	3.0E-14	2.4E-14	6.9E-15	4.4E-14	9.3E-15	2.0E-14	1.4E-14	3.7E-16
bis(2-ethylhexyl)phthalate	9.7E-12	3.4E-11	1.9E-11	8.7E-12	3.8E-11	1.2E-11	2.0E-11	1.6E-11	3.4E-13
carbazole	3.1E-12	2.1E-11	4.5E-12	1.9E-12	1.4E-11	4.8E-12	9.9E-12	9.7E-12	1.6E-13
chloroform	4.1E-14	1.7E-13	1.1E-13	3.5E-14	2.2E-13	5.4E-14	1.1E-13	8.6E-14	1.9E-15
methylene chloride	6.6E-12	3.6E-11	1.3E-11	4.8E-12	4.5E-11	9.4E-12	2.0E-11	1.5E-11	3.5E-13
tetrachloroethene	4.0E-06	9.8E-06	5.4E-05	1.9E-05	1.5E-05	4.2E-06	8.3E-06	6.1E-06	1.9E-07
trichloroethene	8.1E-06	2.0E-05	1.1E-04	3.9E-05	3.1E-05	8.5E-06	1.7E-05	1.2E-05	3.8E-07
n-nitrosodiphenylamine	4.0E-12	9.8E-12	1.1E-11	5.0E-12	1.1E-11	4.4E-12	6.5E-12	6.8E-12	1.3E-13
n-nitrosodipropylamine	1.4E-13	5.8E-13	4.7E-13	1.4E-13	8.6E-13	1.8E-13	3.9E-13	2.8E-13	7.3E-15
benzo(a)anthracene	3.2E-11	1.4E-10	6.4E-11	2.4E-11	1.5E-10	4.3E-11	7.8E-11	6.8E-11	1.4E-12
benzo(a)pyrene	3.7E-11	1.5E-10	7.7E-11	2.8E-11	1.8E-10	4.9E-11	9.1E-11	7.6E-11	1.6E-12
benzo(b)fluoranthene	3.7E-11	1.5E-10	8.1E-11	2.9E-11	1.6E-10	4.9E-11	8.9E-11	8.0E-11	1.6E-12
benzo(k)fluoranthene	3.3E-11	1.5E-10	7.8E-11	2.7E-11	1.8E-10	4.5E-11	8.9E-11	7.2E-11	1.6E-12
chrysene	3.2E-11	1.2E-10	6.6E-11	2.4E-11	1.3E-10	4.1E-11	7.1E-11	6.4E-11	1.3E-12
dibenzo(a,h)anthracene	1.1E-11	5.2E-11	2.5E-11	8.7E-12	6.0E-11	1.5E-11	3.0E-11	2.5E-11	5.3E-13
indeno(1,2,3-cd)pyrene	2.3E-11	9.9E-11	5.1E-11	1.8E-11	1.0E-10	3.1E-11	5.7E-11	5.0E-11	9.9E-13
aroclor-1254	6.4E-11	2.1E-10	8.9E-11	3.9E-11	2.6E-10	7.8E-11	1.3E-10	1.0E-10	2.2E-12
aroclor-1260	8.5E-13	3.6E-12	2.9E-12	8.3E-13	5.3E-12	1.1E-12	2.4E-12	1.7E-12	4.5E-14
4,4-dde	1.3E-13	2.5E-13	1.3E-13	6.4E-14	2.3E-13	1.5E-13	1.5E-13	1.8E-13	2.9E-15
4,4-ddt	1.3E-13	4.0E-13	3.0E-13	1.0E-13	5.3E-13	1.6E-13	2.6E-13	2.2E-13	4.9E-15
chlordane	2.3E-14	4.8E-14	4.8E-14	2.2E-14	4.9E-14	2.6E-14	3.1E-14	3.6E-14	6.3E-16
dieldrin	3.7E-14	7.2E-14	4.9E-14	2.3E-14	6.9E-14	4.2E-14	4.5E-14	5.2E-14	8.7E-16
octachlorodibenzo-p-dioxi	3.4E-15	9.2E-15	1.0E-14	4.1E-15	1.2E-14	3.8E-15	6.2E-15	5.9E-15	1.2E-16
octachlorodibenzofuran	1.8E-15	7.5E-15	6.0E-15	1.7E-15	1.1E-14	2.3E-15	5.1E-15	3.6E-15	9.3E-17

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TABLE A.3-12
(con't)

Constituents	Southern Fenceline	Eastern Fenceline	Northern Fenceline	Western Fenceline	Northeast Of FEMP	Southeast Of FEMP	At Well 2071	At Well 2119	Near the GMR
Inorganics	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)	(mg/m³)
cyanide	5.2E−10	2.0E−09	5.1E−10	3.1E−10	1.0E−09	1.0E−09	8.5E−10	1.0E−09	1.6E−11
aluminum	8.6E−06	2.7E−05	1.1E−05	8.0E−06	1.8E−05	1.3E−05	1.3E−05	1.5E−05	2.5E−07
antimony	1.4E−08	4.5E−08	2.4E−08	2.1E−08	2.7E−08	2.1E−08	2.3E−08	2.7E−08	4.7E−10
arsenic	9.2E−09	2.9E−08	1.2E−08	1.2E−08	1.8E−08	1.4E−08	1.4E−08	1.6E−08	2.8E−10
barium	1.2E−07	3.6E−07	1.5E−07	9.9E−08	2.7E−07	1.8E−07	1.8E−07	2.1E−07	3.6E−09
beryllium	1.0E−09	3.3E−09	1.2E−09	9.0E−10	2.3E−09	1.5E−09	1.6E−09	1.8E−09	3.0E−11
cadmium	3.5E−09	1.3E−08	6.2E−09	4.4E−09	8.7E−09	5.5E−09	6.4E−09	7.0E−09	1.2E−10
chromium vi	1.6E−08	6.1E−08	2.3E−08	1.6E−08	4.0E−08	2.6E−08	2.9E−08	3.2E−08	5.4E−10
cobalt	8.9E−09	2.8E−08	1.3E−08	8.8E−09	2.0E−08	1.3E−08	1.4E−08	1.6E−08	2.6E−10
copper	3.2E−08	1.2E−07	3.5E−08	2.3E−08	8.8E−08	6.6E−08	5.6E−08	6.4E−08	1.0E−09
lead	5.4E−07	2.1E−06	2.0E−07	1.5E−07	6.3E−07	1.6E−06	7.6E−07	1.2E−06	1.5E−08
manganese	8.8E−07	3.1E−06	1.1E−06	8.9E−07	1.8E−06	1.3E−06	1.4E−06	1.6E−06	2.7E−08
manganese	8.8E−07	3.1E−06	1.1E−06	8.9E−07	1.8E−06	1.3E−06	1.4E−06	1.6E−06	2.7E−08
mercury	3.3E−10	1.2E−09	3.2E−10	2.2E−10	7.3E−10	4.7E−10	5.5E−10	6.6E−10	1.1E−11
molybdenum	6.3E−09	2.4E−08	9.4E−09	5.5E−09	1.8E−08	1.1E−08	1.1E−08	1.3E−08	2.2E−10
nickel	1.9E−08	6.8E−08	2.9E−08	2.2E−08	4.7E−08	2.9E−08	3.3E−08	3.6E−08	6.2E−10
selenium	8.0E−10	1.7E−09	1.1E−09	7.3E−10	1.6E−09	1.0E−09	1.0E−09	1.1E−09	2.1E−11
silver	6.4E−09	2.0E−08	1.0E−08	7.6E−09	1.5E−08	1.1E−08	1.0E−08	1.2E−08	2.0E−10
thallium	2.4E−10	9.1E−10	4.9E−10	3.0E−10	7.3E−10	3.9E−10	4.6E−10	4.8E−10	8.7E−12
uranium−total	1.6E−06	5.1E−06	1.3E−06	9.3E−07	2.6E−06	2.0E−06	2.4E−06	3.0E−06	4.8E−08
vanadium	2.1E−08	7.0E−08	2.9E−08	2.0E−08	4.8E−08	3.3E−08	3.4E−08	3.8E−08	6.4E−10
zinc	1.1E−07	4.8E−07	3.1E−07	1.1E−07	4.9E−07	1.6E−07	2.6E−07	2.2E−07	4.5E−09

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TABLE A.3-13
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR GROUNDWATER OFF-PROPERTY, CURRENT LAND USE

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP
Radionuclides	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)
Np_{237+1d}	NA	NA	2.50E+00	NA	NA	NA
Ra_{226+5d}	3.30E+00	1.50E+00	3.50E+00	2.30E+00	NA	1.20E+00
Ra_{228+1d}	NA	3.90E+00	4.40E+00	NA	NA	NA
Sr_{90+1d}	NA	NA	5.69E+00	NA	NA	NA
Tc_{99}	NA	NA	2.44E+01	NA	NA	NA
Th_{228+7d}	NA	1.49E+00	8.60E+00	NA	NA	6.00E-01
Th_{230}	2.38E+00	1.30E+00	2.13E+00	NA	NA	7.00E-01
Th_{232}	NA	4.81E-01	2.70E+00	NA	NA	3.00E-01
U_{234}	2.50E+00	3.40E+00	8.42E+01	2.10E+00	NA	6.00E-01
$U_{235/236}$	NA	NA	1.87E+00	NA	NA	NA
U_{238+2d}	2.40E+00	3.80E+00	9.93E+01	1.80E+00	NA	7.00E-01
Organic Chemicals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
acetone	8.00E-03	2.00E-03	5.00E-03	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	1.00E-03	NA	NA	NA
carbon disulfide	5.00E-03	NA	NA	NA	NA	NA
chloroform	NA	NA	2.90E-02	NA	NA	NA
1,1-dichloroethane	NA	NA	5.80E-02	NA	NA	NA
1,1-dichloroethene	NA	NA	1.10E-01	NA	NA	NA
1,2-dichloroethane	NA	NA	3.10E-01	NA	NA	NA
1,2-dichloroethene	NA	NA	4.00E-03	NA	NA	NA
methylene chloride	NA	NA	NA	1.00E-03	NA	NA
trichloroethene	9.00E-03	NA	3.40E-02	NA	NA	NA
1,1,1-trichloroethane	NA	NA	1.00E-02	NA	NA	NA
toluene	8.00E-03	NA	NA	NA	NA	NA
Inorganics	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
cyanide	NA	NA	5.50E-02	NA	NA	NA
aluminum	5.37E+00	NA	1.08E+01	NA	NA	NA
antimony	NA	4.40E-02	3.10E-02	NA	NA	NA
arsenic	2.76E-02	1.56E-01	3.10E-01	NA	NA	NA
barium	1.59E+00	8.20E-01	3.08E-01	NA	NA	9.07E-02
beryllium	1.16E-02	NA	NA	NA	NA	NA
cadmium	1.27E-01	6.50E-03	2.85E-02	NA	NA	3.40E-03
chromium vi	7.71E+00	NA	1.11E+00	2.00E-02	NA	7.32E-02
cobalt	3.05E-01	NA	4.36E-02	NA	NA	NA
copper	7.26E-01	NA	6.04E-02	NA	NA	7.10E-03
lead	2.62E-01	3.30E-03	2.40E-02	2.20E-02	NA	NA
manganese	1.24E+01	NA	3.41E+00	NA	NA	2.97E-01
manganese	1.24E+01	NA	3.41E+00	NA	NA	2.97E-01
mercury	NA	NA	1.50E-03	NA	NA	NA
molybdenum	NA	4.50E-02	3.50E-02	NA	NA	NA
nickel	3.93E+00	NA	2.91E-02	NA	NA	6.50E-02
selenium	5.63E-02	NA	2.00E-03	1.20E-03	NA	2.80E-03
silver	NA	2.90E-02	2.00E-02	NA	NA	NA
uranium-total	6.50E-03	1.58E-03	3.32E-01	6.60E-03	NA	9.00E-04
vanadium	3.61E-01	NA	2.95E-02	3.80E-03	NA	NA
zinc	1.18E+00	NA	9.80E-02	1.85E-01	NA	5.00E-03
ammonia	4.56E+00	2.50E+01	3.20E-01	3.90E+00	NA	NA
nitrate	1.70E-01	1.00E-01	5.81E+00	4.40E+00	NA	2.28E+00
fluoride	5.90E-01	9.40E-01	4.51E-01	5.32E-01	NA	1.60E-01
sulfate	2.42E+02	1.70E+01	1.02E+02	1.40E+02	NA	NA

NA - Constituent is not a CPC for this location.

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TABLE A.3-14
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR GROUNDWATER ON-PROPERTY, FUTURE LAND USE

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area	Perched GW Production Area
Radionuclides	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)
Np_{237+1d}	5.8E-02	2.4E-03	2.0E-02	6.1E-01	4.8E-01	2.5E-01	6.1E-01	2.0E+00
Pu_{238}	NA	NA	NA	NA	NA	NA	NA	9.1E-01
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA	NA	5.1E-01
Ra_{226+8d}	3.2E+00	3.3E+00	3.3E+00	1.6E+01	1.4E+01	1.2E+01	1.6E+01	2.1E+00
Sr_{90+1d}	3.3E-01	1.4E-04	8.1E-03	1.4E+01	9.0E+00	3.3E+00	1.4E+01	3.5E+00
Tc_{99}	3.3E+03	1.2E+02	1.1E+03	6.8E+03	4.8E+03	3.3E+02	6.8E+03	1.9E+03
Th_{230}	NA	NA	NA	NA	NA	NA	NA	1.5E+00
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	2.9E+00
U_{234}	9.4E+02	2.2E+00	5.0E+02	3.1E+03	2.1E+03	5.8E+01	3.1E+03	1.0E+04
$U_{235/236}$	4.3E+01	9.9E-02	2.3E+01	1.4E+02	9.8E+01	2.6E+00	1.4E+02	5.2E+02
U_{238+2d}	9.2E+02	2.1E+00	4.9E+02	3.0E+03	2.1E+03	5.7E+01	3.0E+03	1.2E+04
Organic Chemicals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
acetone	NA	NA	NA	NA	NA	NA	NA	1.3E-02
benzene	NA	NA	NA	NA	NA	NA	NA	1.4E-02
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	6.0E-03
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	2.1E-02
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	3.0E-03
chloroform	NA	NA	NA	NA	NA	NA	NA	4.7E-02
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	7.2E-02
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	1.8E-02
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	7.2E-02
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	6.8E-02
methylene chloride	NA	NA	NA	NA	NA	NA	NA	1.2E-02
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	7.0E-03
trichloroethene	NA	NA	NA	NA	NA	NA	NA	1.7E-01
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	6.8E-02
1,1,2-trichloroethane	NA	NA	NA	NA	NA	NA	NA	1.0E-03
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	8.0E-03
toluene	NA	NA	NA	NA	NA	NA	NA	5.0E-02
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	2.0E-03
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	9.4E-02
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	1.1E-01

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TABLE A.3-14
(con't)

Constituents	Production Area	Northwest Area	Northeast Area	Southeast Area	Southwest Area	Waste Pit Area	Trap Range Area	Perched GW Production Area
Inorganics	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
cyanide	NA	NA	NA	NA	NA	NA	NA	5.5E-01
aluminum	NA	NA	NA	NA	NA	NA	NA	1.2E+02
antimony	3.7E-02	2.2E-04	4.0E-02	2.9E-03	1.2E-02	4.6E-02	2.9E-03	8.4E-02
arsenic	9.7E-03	1.4E-03	4.6E-03	5.7E-03	5.1E-03	1.7E-03	5.7E-03	1.4E-02
barium	NA	NA	NA	NA	NA	NA	NA	2.8E-01
beryllium	4.3E-08	3.9E-19	1.6E-12	1.2E-04	1.1E-04	2.6E-05	1.2E-04	8.6E-03
boron	NA	NA	NA	NA	NA	NA	NA	4.3E-01
cadmium	NA	NA	NA	NA	NA	NA	NA	1.6E-02
chromium vi	3.0E-04	5.9E-06	1.3E-04	1.1E-02	8.3E-03	1.2E-03	1.1E-02	1.2E-01
cobalt	NA	NA	NA	NA	NA	NA	NA	2.7E-02
copper	NA	NA	NA	NA	NA	NA	NA	2.8E-01
lead	NA	NA	NA	NA	NA	NA	NA	3.2E-02
manganese	2.4E+00	4.3E-01	8.1E-01	1.4E+00	1.2E+00	9.8E-01	1.4E+00	2.8E+00
manganese	2.4E+00	4.3E-01	8.1E-01	1.4E+00	1.2E+00	9.8E-01	1.4E+00	2.8E+00
mercury	NA	NA	NA	NA	NA	NA	NA	2.0E-04
molybdenum	NA	NA	NA	NA	NA	NA	NA	4.0E-02
nickel	NA	NA	NA	NA	NA	NA	NA	6.7E-02
selenium	NA	NA	NA	NA	NA	NA	NA	6.3E-03
silver	NA	NA	NA	NA	NA	NA	NA	6.2E-02
thallium	NA	NA	NA	NA	NA	NA	NA	3.4E-01
uranium-total	2.8E+00	6.4E-03	1.5E+00	9.1E+00	6.3E+00	1.7E-01	9.1E+00	1.3E+02
vanadium	NA	NA	NA	NA	NA	NA	NA	2.7E-01
zinc	NA	NA	NA	NA	NA	NA	NA	3.0E-01
ammonia	NA	NA	NA	NA	NA	NA	NA	9.2E-01
nitrate	NA	NA	NA	NA	NA	NA	NA	4.6E+01
fluoride	NA	NA	NA	NA	NA	NA	NA	1.2E+00
sulfate	NA	NA	NA	NA	NA	NA	NA	3.5E+02

NA – Constituent is not a CPC for this location.

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TABLE A.3-15
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR GROUNDWATER OFF-PROPERTY, FUTURE LAND USE

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP	Well 2071	Well 2119	Well near GMR
Radionuclides	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)
Np_{237+1d}	1.1E-01	2.2E-05	1.5E-01	6.9E-02	3.0E-11	7.8E-02	4.6E-07	1.4E-02	6.8E-03
Pu_{238}	NA	NA	1.6E-10	NA	NA	1.6E-18	NA	NA	NA
$Pu_{239/240}$	NA	NA	2.3E-10	NA	NA	3.1E-16	NA	NA	NA
Ra_{226+8d}	1.3E+00	1.1E+00	2.0E-01	1.2E+00	8.8E-16	7.1E-03	8.8E-16	5.2E-02	2.7E-09
Sr_{90+1d}	1.1E-01	1.1E-07	5.9E-01	8.0E-01	9.5E-11	1.4E-02	3.2E-06	5.4E-04	1.1E-05
Tc_{99}	1.1E+03	4.5E+01	1.5E+03	9.1E+01	5.9E-03	6.9E+02	1.9E+00	7.2E+01	8.8E+01
Th_{230}	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.3E+02	1.3E-02	6.0E+02	3.8E+00	1.7E-02	3.0E+02	4.4E-01	7.0E+01	4.2E+01
$U_{235/236}$	2.0E+01	5.8E-04	2.7E+01	1.7E-01	7.6E-04	1.4E+01	2.0E-02	3.2E+00	1.9E+00
U_{238+2d}	4.2E+02	1.2E-02	5.9E+02	3.7E+00	1.6E-02	2.9E+02	4.3E-01	6.8E+01	4.1E+01
Organic Chemicals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	NA	NA	1.2E-07	NA	NA	4.7E-09	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	9.3E-01	NA	NA	2.3E-01	2.5E-02	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	4.0E-03	NA	NA	2.5E-10	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	4.9E-05	NA	NA	1.5E-08	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	7.1E-11	NA	NA	1.3E-16	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	2.4E-01	NA	NA	6.4E-02	NA	NA	NA
4-nitroanaline	NA	NA	4.5E-04	NA	NA	2.3E-04	NA	NA	NA
n-nitrosodipropylamine	NA	NA	4.2E-07	NA	NA	1.1E-08	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA

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TABLE A.3-15
(con't)

Constituents	Eastern Fenceline	Northern Fenceline	Southern Fenceline	Western Fenceline	Northeast of FEMP	Southeast of FEMP	Farm near Well 2071	Farm near Well 2119	Farm near GMR
Inorganics	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
cyanide	NA	NA	9.7E-01	NA	NA	2.7E-01	NA	NA	NA
aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.6E-03	7.7E-08	6.4E-05	2.6E-04	NA	4.5E-07	1.3E-13	3.2E-07	1.3E-16
arsenic	1.7E-04	1.4E-04	3.6E-07	3.9E-04	NA	1.0E-16	9.7E-25	5.1E-18	NA
barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.4E-11	NA	2.3E-09	5.4E-06	NA	1.9E-20	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-03	5.5E-08	2.3E-03	3.4E-04	2.4E-15	1.1E-03	5.7E-10	1.4E-04	1.3E-04
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	NA	NA	8.7E-06	NA	NA	2.3E-10	NA	NA	NA
manganese	4.4E-01	8.1E-04	4.4E-02	2.9E-01	3.8E-19	2.5E-03	4.4E-08	8.0E-04	1.8E-05
manganese	4.4E-01	8.1E-04	4.4E-02	2.9E-01	3.8E-19	2.5E-03	4.4E-08	8.0E-04	1.8E-05
mercury	NA	NA	NA	NA	NA	5.8E-10	NA	1.3E-10	4.3E-13
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.3E+00	3.7E-05	1.8E+00	1.1E-02	4.9E-05	8.7E-01	1.3E-03	2.0E-01	1.2E-01
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Constituent is not a CPC for this location.

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TABLE A.3-16
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE WATER, CURRENT LAND USE

Constituents	Area 4	Area 9	Area 10	Great Miami River: Effluent Outfall	Great Miami River: Confluence Paddys Run	Paddys Run Offsite
Radionclides	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)
Np_{237+1d}	NA	7.5E-01	NA	NA	NA	NA
$Pu_{239/240}$	NA	8.1E-01	NA	NA	NA	NA
Ra_{226+5d}	NA	NA	1.7E+00	2.8E+00	2.5E+00	2.0E+00
Ra_{228+1d}	NA	NA	3.2E+00	4.0E+00	4.6E+00	3.7E+00
Tc_{99}	8.4E+01	NA	NA	NA	NA	NA
Th_{228+7d}	NA	NA	NA	NA	NA	3.2E+00
Th_{230}	NA	2.5E+00	4.3E-01	4.0E-01	7.0E-01	2.0E+00
Th_{232}	NA	NA	4.0E-01	NA	NA	NA
U_{234}	7.3E+01	1.2E+03	1.1E+01	9.0E-01	8.0E-01	7.0E+00
$U_{235/236}$	6.3E+00	4.2E+01	1.7E+00	NA	NA	NA
U_{238+2d}	3.6E+02	1.2E+03	1.4E+01	8.0E-01	6.0E-01	3.9E+00
Organic Chemicals	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
bis(2-ethylhexyl)phthalate	NA	NA	5.8E-02	NA	1.6E-01	2.2E-02
di-n-octylphthalate	NA	NA	NA	NA	2.0E-03	8.9E-02
1,2-dichloroethene	NA	6.7E-02	NA	NA	NA	NA
tetrachloroethene	NA	2.4E-01	NA	NA	NA	NA
trichloroethene	NA	1.8E-02	NA	NA	2.0E-03	2.0E-03
cyanide	NA	2.8E-03	7.7E-03	6.1E-03	2.1E-02	NA
aluminum	2.3E-01	1.4E+01	1.8E-01	6.7E-01	NA	NA
antimony	NA	NA	NA	NA	NA	1.5E-02
arsenic	NA	3.4E-03	5.4E-03	2.9E-03	6.0E-03	2.4E-03
barium	6.3E-02	2.2E-01	NA	1.0E-01	2.3E-01	4.9E-02
beryllium	1.5E-03	NA	NA	7.7E-03	NA	NA
cadmium	6.3E-03	NA	5.0E-03	5.3E-03	1.8E-02	NA
chromium vi	1.8E-02	1.1E-02	NA	NA	2.6E-01	NA
cobalt	1.4E-02	NA	NA	NA	NA	NA
copper	1.6E-02	2.0E-02	NA	NA	3.1E-02	NA
lead	NA	9.1E-03	1.6E-01	7.8E-03	4.4E-02	7.0E-02
manganese	6.5E-02	8.2E-01	4.1E-02	8.9E-02	5.6E-01	5.7E-02
manganese	6.5E-02	8.2E-01	4.1E-02	8.9E-02	5.6E-01	5.7E-02
mercury	6.0E-04	NA	NA	NA	NA	NA
molybdenum	2.3E-02	NA	NA	NA	NA	NA
nickel	1.3E-02	2.7E-02	1.4E-02	NA	2.6E-02	NA
selenium	NA	NA	1.0E-03	NA	NA	NA
silver	NA	NA	4.0E-03	NA	NA	NA
thallium	NA	NA	NA	NA	NA	1.4E-03
uranium-total	9.4E-01	1.4E-01	3.5E-02	2.5E-03	2.8E-03	8.8E-03
vanadium	1.9E-02	3.2E-02	NA	NA	NA	NA
zinc	3.3E-02	3.8E-02	1.5E-02	NA	1.1E-01	NA
ammonia	NA	4.5E-01	1.5E-01	3.9E-02	NA	1.5E-01
nitrate	2.3E+00	2.7E+00	1.6E+00	3.7E+00	NA	NA
nitrite	NA	NA	1.5E+00	NA	NA	NA
fluoride	4.4E-01	5.6E-01	2.3E-01	3.0E-01	NA	1.9E-01
sulfate	1.3E+02	1.0E+02	8.9E+01	6.1E+01	NA	5.9E+01

NA - Constituent is not a CPC for this location.

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TABLE A.3-17
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SEDIMENTS, CURRENT LAND USE

Constituents	Area 4	Area 9	Area 10	Paddys Run Off-property
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)	(pCi/g)
Np_{237+1d}	1.0E-01	NA	NA	NA
Ra_{226+5d}	1.0E+00	6.9E-01	9.4E-01	1.1E+00
Ra_{228+1d}	1.1E+00	9.0E-01	8.0E-01	6.0E-01
Sr_{90+1d}	9.9E-01	NA	NA	NA
Th_{228+7d}	7.3E-01	NA	7.0E-01	4.0E-01
Th_{230}	1.1E+00	NA	2.6E+00	8.0E-01
Th_{232}	5.7E-01	NA	8.0E-01	4.0E-01
U_{234}	3.7E+00	NA	3.6E+00	8.0E-01
$U_{235/236}$	2.5E-01	NA	9.0E-01	NA
U_{238+2d}	4.6E+00	NA	3.1E+00	7.0E-01
Organics Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
acetone	1.1E-01	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-01	NA	5.4E-02	NA
carbazole	1.2E-01	NA	NA	NA
1,1-dichloroethane	3.0E-03	NA	NA	NA
methylene chloride	NA	NA	7.0E-03	6.0E-03
toluene	NA	NA	2.0E-03	NA
benzo(a)anthracene	5.0E-01	NA	1.4E-01	NA
benzo(a)pyrene	5.5E-01	NA	1.3E-01	NA
benzo(b)fluoranthene	7.3E-01	NA	2.4E-01	NA
benzo(k)fluoranthene	2.7E-01	NA	3.0E-01	NA
benzo(g,h,i)perylene	2.4E-01	NA	1.0E-01	NA
chrysene	5.1E-01	NA	1.5E-01	NA
indeno(1,2,3-cd)pyrene	3.1E-01	NA	1.0E-01	NA
fluoranthene	1.4E+00	NA	3.5E-01	NA
phenanthrene	1.0E+00	NA	1.9E-01	NA
pyrene	9.9E-01	NA	2.6E-01	NA
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	NA	NA	4.9E-01	NA
aluminum	1.1E+04	NA	7.3E+03	2.3E+03
arsenic	1.0E+01	NA	5.5E+00	4.8E+00
barium	1.1E+02	NA	4.3E+01	3.2E+01
beryllium	8.3E-01	NA	3.5E+00	1.8E+00
cadmium	NA	NA	5.5E+00	NA
chromium vi	1.3E+01	NA	1.8E+01	5.5E+00
cobalt	1.1E+01	NA	6.0E+00	NA
copper	1.9E+01	NA	1.2E+01	7.6E+00
lead	2.3E+01	1.8E+01	1.5E+01	9.6E+00
manganese	1.6E+03	NA	8.0E+02	5.0E+02
manganese	1.6E+03	NA	8.0E+02	5.0E+02
molybdenum	6.6E+00	NA	NA	NA
nickel	2.2E+01	NA	2.0E+01	6.1E+00
silver	6.8E+00	NA	NA	2.5E-01
thallium	7.6E-01	NA	NA	NA
uranium-total	3.1E+01	3.0E+01	2.3E+01	1.1E+01
vanadium	3.0E+01	NA	2.2E+01	1.7E+01
zinc	7.3E+01	NA	8.1E+01	5.0E+01
ammonia	NA	9.4E+01	5.0E+01	NA
nitrate	NA	2.6E+00	2.8E+00	NA
fluoride	NA	5.7E+00	7.6E+00	NA
chloride	NA	4.0E+01	2.3E+02	NA
sulfate	NA	4.2E+02	7.0E+02	NA

NA = Constituent is not a CPC for location.

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TABLE A.3-18
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SURFACE WATER, FUTURE LAND USE

Constituents	Southeast Area	Southwest Area	Waste Pit Area	GMR Confluence Paddys Run
Radionclides	(pCi/L)	(pCi/L)	(pCi/L)	(pCi/L)
Np_{237+1d}	NA	2.0E−01	7.5E−01	1.7E−02
Pu_{238}	NA	6.0E−02	NA	5.2E−03
$Pu_{239/240}$	NA	2.3E−02	8.1E−01	2.0E−03
Ra_{226+8d}	NA	4.7E+00	NA	4.1E−01
Sr_{90+1d}	NA	1.2E+00	NA	1.0E−01
Tc_{99}	NA	1.5E+03	NA	1.3E+02
Th_{230}	NA	8.5E−01	2.5E+00	7.4E−02
$Th_{232+10d}$	NA	6.4E−02	NA	5.6E−03
U_{234}	1.5E+00	8.4E+02	1.2E+03	7.3E+01
$U_{235/236}$	NA	5.1E+01	4.2E+01	4.5E+00
U_{238+2d}	1.7E+00	9.8E+02	1.2E+03	8.6E+01
Organic Chemicals	(mg/L)	(mg/L)	(mg/L)	(mg/L)
bromodichloromethane	NA	5.6E−05	NA	4.9E−06
bis(2−chloroisopropyl)ether	NA	4.9E−04	NA	4.3E−05
bis(2−ethylhexyl)phthalate	5.8E−02	NA	NA	NA
1,2−dichloroethene	NA	NA	6.7E−02	NA
tetrachloroethene	NA	NA	2.4E−01	NA
trichloroethene	NA	NA	1.8E−02	NA
4−methylphenol	NA	2.4E−02	NA	2.1E−03
4−nitroanaline	NA	1.4E−03	NA	1.2E−04
aroclor−1254	NA	5.8E−06	NA	5.1E−07
aroclor−1260	NA	1.8E−06	NA	1.6E−07
chlordane	NA	3.5E−06	NA	3.0E−07
Inorganics	(mg/L)	(mg/L)	(mg/L)	(mg/L)
cyanide	7.7E−03	1.4E−01	2.8E−03	1.2E−02
aluminum	NA	NA	1.4E+01	NA
antimony	NA	1.5E−03	NA	1.3E−04
arsenic	5.4E−03	2.9E−03	3.4E−03	2.5E−04
barium	NA	NA	2.2E−01	NA
beryllium	NA	3.8E−05	NA	3.3E−06
chromium vi	NA	NA	1.1E−02	NA
copper	NA	NA	2.0E−02	NA
lead	9.8E−02	6.3E−03	9.1E−03	5.5E−04
manganese	4.1E−02	2.8E−01	8.2E−01	2.5E−02
manganese	4.1E−02	2.8E−01	8.2E−01	2.5E−02
mercury	NA	1.6E−03	NA	1.4E−04
nickel	NA	NA	2.7E−02	NA
selenium	1.0E−03	NA	NA	NA
uranium−total	3.5E−02	2.0E+00	1.4E−01	1.7E−01
vanadium	NA	NA	3.2E−02	NA
zinc	9.8E−03	NA	3.8E−02	NA
ammonia	1.5E−01	NA	4.5E−01	NA
nitrate	NA	NA	2.7E+00	NA
fluoride	2.2E−01	NA	5.6E−01	NA
sulfate	8.9E+01	NA	1.0E+02	NA

NA − Constituent is not a CPC for this location.

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TABLE A.3-19
SUMMARY OF EXPOSURE POINT CONCENTRATIONS FOR SEDIMENTS, FUTURE LAND USE

Constituents	Southeast Area	Southwest Area	Waste Pit Area
Radionuclides	(pCi/g)	(pCi/g)	(pCi/g)
Np_{237+1d}	2.0E-01	3.3E-01	3.3E-01
Pu_{238}	2.9E+00	1.6E+00	2.7E-01
$Pu_{239/240}$	1.1E+00	6.2E-01	1.5E-01
Ra_{226+8d}	9.5E+01	5.1E+01	7.9E+00
Sr_{90+1d}	3.4E-01	2.6E-01	1.8E-01
Tc_{99}	5.0E+00	4.1E+00	3.0E+00
Th_{230}	1.4E+02	8.6E+01	3.2E+01
$Th_{232+10d}$	1.1E+01	7.1E+00	3.8E+00
U_{234}	5.8E+02	3.0E+02	3.1E+01
$U_{235/236}$	3.8E+01	2.1E+01	4.0E+00
U_{238+2d}	6.7E+02	4.3E+02	1.9E+02
Organics Chemicals	(mg/Kg)	(mg/Kg)	(mg/Kg)
bromodichloromethane	NA	7.1E-04	3.6E-04
bis(2-chloroisopropyl)ether	3.0E-03	NA	NA
bromomethane	7.8E-03	3.8E-03	NA
4-methylphenol	2.9E-01	1.5E-01	1.1E-02
aroclor-1254	9.9E-01	5.3E-01	7.4E-02
aroclor-1260	3.7E-01	1.8E-01	3.3E-03
chlordane	3.3E-04	NA	NA
Inorganics	(mg/Kg)	(mg/Kg)	(mg/Kg)
cyanide	4.8E-02	3.9E-02	2.9E-02
antimony	4.6E+00	1.1E+01	1.1E+01
arsenic	9.2E+00	1.7E+01	1.7E+01
beryllium	1.4E+00	1.3E+00	1.2E+00
lead	5.2E+02	2.7E+02	2.4E+01
manganese	1.4E+03	1.1E+03	7.5E+02
manganese	1.4E+03	1.1E+03	7.5E+02
mercury	4.5E-01	3.4E-01	2.3E-01
uranium-total	1.6E+03	9.9E+02	4.0E+02

NA - Constituent is not a CPC for this location.

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TABLE A.3-20

EXPOSURE INPUT PARAMETERS
CURRENT LAND USE RECEPTORS
OPERABLE UNIT 5

Pathway Parameter (units)	Trespassing Youth & Exploring Youth Age 7-18	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Ages 1-6	User of Meat & Milk Grown Within OU5 Age 1-70	GMR User Ages 1-70	On-Property Visitor Age 19+	Critical Subpopulations "Students" Grades K-8	9-12	On-Property Groundskeeper Age 19+
All pathways unless otherwise specified									
EF (day/yr)	52[a]	350[b]	350[b]	350[b]	350[b]	250[d]	180[a]	180[a]	250/35[e]
ED (yr)	12[a]	70[b]	6[b]	70[b]	70[b]	25[d]	9	4	25[d]
AT-Noncancer (day)	4380[b]	25550[b]	2190[b]	25550[b]	25550[b]	9125[b]	3285	1460	9125[b]
AT-Cancer (day)	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]	25550	25550	25550[b]
BW (kg)	43[b]	70[b]	15[b]	70[b]	70[b]	70[b]	31[c]	56[c]	70[b]
ET (hr/day)	4[a]	5.7[f]	2[f]	NA	NA	2[o]	2[t]	2[t]	8[d]
Inhalation of dust, volatiles, and radon									
IR (m^3/hr)	0.83[b]	0.83[b]	0.5[k,l]	NA[c]	NA	2.5[d]	0.83[b]	0.83[b]	2.5[d]
ET outdoors (hr/day)	4[a]	5.7[f]	2.0[f]	NA	NA	2.0[o]	2[t]	2[t]	8.0[d]
Inhalation of volatiles and radon released while showering or during household use of water									
IR indoor (m^3/d)	NA	15[m]	15[m]	NA	15[m]	NA	NA	NA	NA
Incidental ingestion of soil/sediment									
IR_{soil} (g/day)	0.1[b]	0.1[b]	0.2[b]	NA	NA	NA	NA	NA	0.1[b]
FI_{soil} (unitless)	0.06[g]	1.0[b]	1.0[b]	NA	NA	NA	NA	NA	1.0
$FI_{sed.}$ (unitless)	0.19[g]	NA	NA	NA	NA	NA	NA	NA	NA
Incidental ingestion of surface water while wading or swimming									
IR (L/hr)	0.035[n]	NA	NA	NA	0.05[b]	NA	NA	NA	NA
ET (hr/day)	1.0[a]	NA	NA	NA	2.6[b]	NA	NA	NA	NA
EF_{wading} (day/yr)	52[a]	NA	NA	NA	NA	NA	NA	NA	NA
EF_{swim} (day/yr)	NA	NA	NA	NA	7[b]	NA	NA	NA	NA
ED (yrs)	12[a]	NA	NA	NA	30[p]	NA	NA	NA	NA

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TABLE A.3-20
(Continued)

Pathway Parameter (units)	Trespassing Youth & Exploring Youth Age 7-18	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Ages 1-6	User of Meat & Milk Grown Within OU5 Age 1-70	GMR User Ages 1-70	On-Property Visitor Age 19+	Critical Subpopulations "Students" Grades K-8	9-12	On-Property Groundskeeper Age 19+
Dermal contact with soil									
SA (cm^2)	4200[h]	5750[h]	2000[h]	NA	NA	NA	NA	NA	5750[h]
AF (mg/cm^2)	1.0[h]	1.0[h]	1.0[h]	NA	NA	NA	NA	NA	1.0[h]
ABS (unitless)	csv	csv	csv	NA	NA	NA	NA	NA	csv[j]
Dermal contact with surface water while swimming or wading									
SA (cm^2)	5130[n]	NA	NA	NA	23000[h]	NA	NA	NA	NA
DA_e (mg/cm^2-event)	csv	NA	NA	NA	csv	NA	NA	NA	NA
ET (hr/event)	1.0[a]	NA	NA	NA	2.6[b]	NA	NA	NA	NA
EF_{swim} (event/yr)	NA	NA	NA	NA	7[b]	NA	NA	NA	NA
EF_{wading} (event/yr)	52[a]	NA	NA	NA	NA	NA	NA	NA	NA
ED (yrs)	12[a]	NA	NA	NA	30[p]	NA	NA	NA	NA
Dermal contact with water while bathing									
SA (cm^2)	NA	23000[h]	8000[h]	NA	23000[h]	NA	NA	NA	NA
DA_e (mg/cm^2-event)	NA	csv	csv	NA	csv	NA	NA	NA	NA
ET (hr/event)	NA	.25[h]	.25[h]	NA	.25[h]	NA	NA	NA	NA
External radiation exposure									
DR (mrem/hr)	csv[i]	csv	csv	NA	NA	csv[j]	NA	NA	csv[j]
ET indoors (hr/day)	NA	18.3[f]	22[f]	NA	NA	NA	NA	NA	NA
ET outdoors (hr/day)	4[a]	5.7[f]	2.0[f]	NA	NA	2.0[o]	NA	NA	8.0[d]
SH indoors (unitless)	NA	0.5[b]	0.5[b]	NA	NA	NA	NA	NA	NA
SH outdoors (unitless)	0[b]	0[b]	0[b]	NA	NA	0[b]	NA	NA	0[b]

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TABLE A.3-20
(Continued)

Pathway Parameter (units)	Trespassing Youth & Exploring Youth Age 7-18	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Ages 1-6	User of Meat & Milk Grown Within OU5 Age 1-70	GMR User Ages 1-70	On-Property Visitor Age 19+	Critical Subpopulations "Students" Grades K-8	9-12	On-Property Groundskeeper Age 19+
Ingestion of vegetables, fruit, milk products, meat and fish									
$IR_{vegetables}$ (g/day)	NA	201[c]	100[j]	NA	201[c]	NA	NA	NA	NA
$FI_{vegetables}$ (unitless)	NA	0.40[c]	0.40[c]	NA	.40[c]	NA	NA	NA	NA
IR_{fruits} (g/day)	NA	142[c]	204[j]	NA	142[c]	NA	NA	NA	NA
FI_{fruits} (unitless)	NA	0.30[c]	0.30[c]	NA	.30[c]	NA	NA	NA	NA
$FT_{fruits\ \&\ vegetables}$ (unitless)	NA	0.5[c]	0.5[c]	NA	0.5[c]	NA	NA	NA	NA
IR_{Meat} (g/day)	NA	101[b]	39[b]	101[b]	101[b]	NA	NA	NA	NA
FI_{meat} (unitless)	NA	0.75[c]	0.75[c]	0.75[c]	.75[c]	NA	NA	NA	NA
$IR_{milk\ products}$ (L/day)	NA	0.4[b]	0.9[b]	0.4[b]	0.4[b]	NA	NA	NA	NA
$FI_{milk\ products}$ (unitless)	NA	0.75[c]	0.75[c]	0.75[c]	0.75[c]	NA	NA	NA	NA
IR_{fish}	NA	NA	NA	NA	54[b]	NA	NA	NA	NA
Ingestion of drinking water									
IR (L/day)	NA	2.0[b]	1.0[b]	NA	2.0[b]	NA	NA	NA	NA

TABLE A.3-20
(Continued)

Pathway Parameter (units)	Trespassing Youth & Exploring Youth Age 7-18	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Ages 1-6	User of Meat & Milk Grown Within OU5 Age 1-70	GMR User Ages 1-70	On-Property Visitor Age 19+	Critical Subpopulations "Students" Grades K-8 9-12	On-Property Groundskeeper Age 19+

[a]DOE 1993d Comment Responses - Site Wide Characterization Report, Assumes a youth trespasses on site 3 days/week for the months of June, July and August (36 days while the youth is not in school) plus 1 day/week for the months of April, May, September and October (16 days) for a total of 52 days, 4 hrs/day. The trespassing youth trespasses on Areas 5-10 due to access controls. The exploring youth can gain access to all 10 areas.
[b]DOE 1992a
[c]EPA 1990d Exposure Factor Handbook
[d]EPA 1991j Standard Default Exposure Factors (OSWER Directive 9285.6-03).
[e]Assumes a groundskeeper spends 250 days/yr in Areas 1-4 of OU5, and 35 days/year in Areas 5-10.
[f]Assumes the RME farmer works outdoors 2000 hours/year, (5.7 hrs/day), and a resident child spends 700 hrs/yr outdoors, (2 hrs/day).
[g]DOE 1993e, Response to Comment 265 of the OU4 RI, Adjusted based on 4 out of 16 (or 25%) waking hours spent on property.
[h]EPA 1992e
[i]csv - Chemical Specific Value
[j]USDA 1986 NFCS, CSF II Report No. 85-1
[k]EPA 1993c
[l]EPA 1988c, Derived from an algorithm relating respiratory route to body weight, corrected by a factor of 2.11.
[m]EPA 1991f
[n]Assumes a wading scenario, therefore, the youth swallows 0.035 L/hr slightly less than in a swimming scenario. Also, it is assumed that approximately 30% of the 95th percentile body surface area contacts water while wading.
[o]Assumes a visitor (delivery person) who comes on property 250 days/year for 2 hour/day.
[p]Assume the GMR user swims in the river over a 30 year period.
[q]EPA 1990d
[s]According to the State of Ohio, school year is 180 days.
[t]Assumes elementary and highschool students spend 1/2 hr walking to school, 1/2 hr walking home from school, and approximately 1 hour in recess or outdoor activities.
NA - Not applicable

TABLE A.3-21a

EXPOSURE INPUT PARAMETERS
FUTURE LAND USE RECEPTORS
OPERABLE UNIT 5

Pathway Parameters (units)	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Age 1-6	User of Great Miami River Water Age 1-70	On-Property CT Adult Farmer Age 1-70	On-Property RME Adult Farmer Age 1-70	On-Property RME Child Age 1-6	On-Property Groundskeeper Age 19+	On-Property Home Builder Age 19+
All pathways except where noted								
EF (day/yr)	350[b]	350[b]	350[b]	234[r]	350[b]	350[b]	250/35[p]	175[d]
ED (yr)	70[b]	6[b]	70[b]	9[r]	70[b]	6[b]	25[s]	1[d]
BW (kg)	70[b]	15[b]	70[b]	70[b]	70[b]	15[b]	70[b]	70[b]
AT-Noncancer (day)	25550[b]	2190[b]	25550[b]	3285[b]	25550[b]	2190[b]	9125[b]	175[b]
AT-Cancer (day)	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]	25550[b]
Inhalation of dusts, volatiles, and radon								
IR (m^3/hr)	0.83[b]	0.5[c,e]	NA[q]	0.83[r]	0.83[b]	0.5[c,e]	2.5[s]	2.5[s]
ET outdoors (hr/day)	5.7[h]	2[j]	NA	4.9[j]	5.7[h]	2[j]	8[s]	8[d]
Inhalation of volatiles and radon released while showering or during household use of water								
IR indoor (m^3/day)	15[f]	15[f]	15[f]	15[f]	15[f]	15[f]	NA	NA
Ingestion of drinking water								
IR (L/day)	2.0[b]	1.0[b]	2.0[b]	1.4[r]	2[b]	1.0[b]	NA	NA
Dermal contact while bathing								
SA (cm^2)	23000[k]	8000[k]	23000[k]	20000[k]	23000[k]	8000[k]	NA	NA
DA_e (mg/cm^2-event)	csv[j]	csv	csv	csv	csv	csv	NA	NA
ET (hr/day)	0.25[k]	0.25[k]	0.25[k]	0.17[k]	0.25[k]	0.25[k]	NA	NA
Incidental ingestion of surface water while swimming or wading								
IR (L/hr)	NA	NA	0.05[k]	NA	NA	NA	NA	NA
ET (hr/day)	NA	NA	2.6[k]	NA	NA	NA	NA	NA
EF_{wading} (day/yr)	NA	NA	NA	NA	NA	NA	NA	NA
EF_{swim} (day/yr)	NA	NA	7[k]	NA	NA	NA	NA	NA
ED (yrs)	NA	NA	30[t]	NA	NA	NA	NA	NA

TABLE A.3-21a (Continued)

Pathway Parameters (units)	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Age 1-6	User of Great Miami River Water Age 1-70	On-Property CT Adult Farmer Age 1-70	On-Property RME Adult Farmer Age 1-70	On-Property RME Child Age 1-6	On-Property Groundskeeper Age 19+	On-Property Home Builder Age 19+
Dermal contact with surface water while swimming or wading								
SA (cm^2)	NA	NA	23000[k]	NA	NA	NA	NA	NA
DA_e (mg/cm^2-event)	NA	NA	csv[j]	NA	NA	NA	NA	NA
ET (hr/day)	NA	NA	2.6[k]	NA	NA	NA	NA	NA
EF_{swim} (day/yr)	NA	NA	7[k]	NA	NA	NA	NA	NA
EF_{wading} (day/yr)	NA	NA	NA	NA	NA	NA	NA	NA
ED (yrs)	NA	NA	30[t]	NA	NA	NA	NA	NA
Incidental ingestion of soil								
IR (g/day)	0.18[u]	0.2[b]	NA	0.1[r]	0.18[u]	0.2[b]	0.1[b]	0.48[s]
EF_{soil} (days/yr)	350[b]	350[b]	NA	234[r]	350[b]	350[b]	250/35[p]	50[d]
Dermal contact with soil								
SA (cm^2)	5750[k]	2000[k]	NA	5000[k]	5750[k]	2000[k]	5750[k]	5750[k]
AF (mg/cm^2)	1.0[k]	1.0[k]	NA	0.2[k]	1.0[k]	1.0[k]	1.0[k]	1.0[k]
ABS (unitless)	csv	csv	NA	csv	csv	csv	csv	csv
External radiation exposure								
DR (mrem/hr)	csv	csv	NA	csv	csv	csv	csv	csv
ET indoors (hr/day)	18.3[h]	22[j]	NA	19.1[i]	18.3[h]	22[j]	NA	4[d]
ET $outdoor_{sediment}$ (hr/day)	NA	NA	NA	NA	NA	NA	NA	NA
ET $outdoors_{soil}$ (hr/day)	5.7[h]	2[j]	NA	4.9[i]	5.7[h]	2[j]	8.0[s]	4[d]
SH indoors (unitless)	0.5[b]	0.5[b]	NA	0.5[b]	0.5[b]	0.5[b]	NA	0.5[b]
SH outdoors (unitless)	0[b]	0[b]	NA	0[b]	0[b]	0[b]	0[b]	0[b]

TABLE A.3-21a (Continued)

Pathway Parameters (units)	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Age 1-6	User of Great Miami River Water Age 1-70	On-Property CT Adult Farmer Age 1-70	On-Property RME Adult Farmer Age 1-70	On-Property RME Child Age 1-6	On-Property Groundskeeper Age 19+	On-Property Home Builder Age 19+
Incidental ingestion of fruits and vegetables								
IR_{fruit} (g/day)	142[n]	204[o,b]	142[n]	142[r]	142[n]	204[o,b]	NA	NA
FI_{fruit} (unitless)	0.3[n]	0.3[n,b]	0.3[n]	0.2[r]	0.3[n]	0.3[n,b]	NA	NA
$IR_{vegetables}$ (g/day)	201[n]	100[o,b]	201[n]	201[r]	201[n]	100[o,b]	NA	NA
$FI_{vegetables}$ (unitless)	0.4[n]	0.4[n,b]	0.4[n]	0.25[r]	0.4[n]	0.4[n,b]	NA	NA
$FT_{fruit\ \&\ vegetables}$ (unitless)	0.5[n]	0.5[n]	0.5[n]	0.5[n]	0.5[n]	0.5[n]	NA	NA
IR_{meat}(g/day)	100[b]	39[o,b]	100[b]	100[b]	100[b]	39[o,b]	NA	NA
FI (unitless)	.75[b]	0.75[b]	0.75[b]	0.44[r]	0.75[b]	0.75[b]	NA	NA
IR_{milk} (L/day)	0.4[b]	0.9[b]	0.4[b]	0.16	0.3[b]	0.9[b]	NA	NA
FI (unitless)	.75[b]	0.75[b]	0.75[b]	0.75[b]	0.75[b]	0.75[b]	NA	NA
IR_{fish} (g/day)	NA	NA	54[b]	NA	NA	NA	NA	NA

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TABLE A.3-21a (Continued)

Pathway Parameters (units)	Off-Property RME Adult Farmer Age 1-70	Off-Property RME Child Age 1-6	User of Great Miami River Water Age 1-70	On-Property CT Adult Farmer Age 1-70	On-Property RME Adult Farmer Age 1-70	On-Property RME Child Age 1-6	On-Property Groundskeeper Age 19+	On-Property Home Builder Age 19+

[a]DOE 1993e Response to Comment 265 of the OU4 RI (Adjusted based on the number of hours exposed out of 16 waking hours).
[b]DOE 1992a
[c]EPA 1993c
[d]NRC 1985, Assumes a home builder spends 175 eight-hour days, building a home, spending 50% of his time working on the house, and 50% of the time working in the house.
[e]EPA 1988c,Derived from an algorithm relating respiratory rate to body rate, corrected by a factor of 2.11
[f]EPA, 1991f
[g]Assumes the youth swallows 0.035 L/hr while wading. Also assumes approximately 30% body surface area exposure for a wading scenario.
[h]Assumes the RME farmer spends 2000 hours outdoors during the 350 days of exposure a year (5.7 h/d = 2000 h/y / 350 d/y). Indoor duration is the remaining time in a day.
[i]EPA 1992j Assumes the CT farmer spends 1155 cummulative hours farming. Therefore 1155 hrs/234 days = 4.9 hr/day spent outdoors. Indoor duration is the remaining time in a day (19.1 hr/day).
[j]Assumes a resident small child spends 700 hours/year outdoors, (2 hrs/day x 350 days/yr).
[k]EPA 1992e, EPA/600/8-91/011b
[l]csv - Chemical Specific Value
[m]EPA 1990d, EPA/600/8-89/043 "Exposure Factor Handbook"
[n]USDA 1986, NFCS, CSFII Report No. 85-1
[o]Assumes the groundskeeper works in the on the grounds of OU5, 250 days/yr in the production area (areas 1-4), and 35 days/yr in the remaining peripheral areas (areas 5-10).
[p]NA - Not applicable
[q]EPA 1993h
[r]EPA 1991j
[s]Assumes the GMR user swims in the river over a period of 30 years
[t]Assumes an age and occupational adjusted soil ingestion rate for the farmer, described in Section A.3.4.6.5.

TABLE A.3-21b
EXPOSURE IMPUT PARAMETERS
FUTURE LAND USE – RECREATIONAL RECEPTORS
OPERABLE UNIT 5

Pathway	Wildlife Reserve Scenario[a]				Undeveloped Park Scenario[b]				Developed Park Scenario[c]			
Parameter Units	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)
All Pathways Unless Otherwise Specified												
BW (Kg)[d]	15	43	70	70	15	43	70	70	15	43	70	70
Total Body SA (cm^2)[f]	8,000	16,550	23,000	23,000	8,000	16,550	23,000	23,000	8,000	16,550	23,000	23,000
ET (hours/day)[e]	1	2	2	1	1	2	2	1	4	4	4	2
EF (days/year)[e]	26	39	52	26	40	104	40	26	64	104	40	40
ED (years)[e]	6	12	38	14	6	12	38	14	6	12	38	14
AT – Noncancer (days)	2190	4380	13870	5110	2190	4380	13870	5110	2190	4380	13870	5110
AT – Cancer (days)	25550	25550	25550	25550	25550	25550	25550	25550	25550	25550	25550	25550
Incidental Ingestion of Soils												
IR (mg/day)[i]	200	100	100	100	200	100	100	100	200	100	100	100
FI (unitless)[h]	0.06	0.13	0.13	0.06	0.06	0.13	0.13	0.06	0.25	0.25	0.25	0.13
CF (Kg/mg)	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Dermal Contact with Soils (chemicals only)												
SA (cm^2)[f]	2,000	4,138	5,750	5,750	2,000	4,138	5,750	5,750	2,000	4,138	5,750	5,750
AF (mg/cm^2)[f]	1	1	1	1	1	1	1	1	1	1	1	1
CF (Kg/mg)	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06	1.00E-06
Inhalation of Particulates												
IR ($m^{3/hr}$)[i]	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
ET (hr/day)	1	2	2	1	1	2	2	1	4	4	4	2
External Radiation Exposure												
SF (unitless)[i]	0	0	0	0	0	0	0	0		0	0	
ET (hr/day)[e]	1	2	2	1	1	2	2	1	4	4	4	2
CF (yr/hours)	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04
Incidental Ingestion of Surface Water while Wading												
IR (L/hr)[g]	NA	0.035	NA	NA	NA	0.035	NA	NA	NA	0.035	NA	NA
ET (hr/day)[g]	NA	1	NA	NA	NA	1	NA	NA	NA	1	NA	NA
EF (hr/day)[g]	NA	52	NA	NA	NA	52	NA	NA	NA	52	NA	NA

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TABLE A.3–21b
(continue)

Pathway Parameter Units	Wildlife Reserve Scenario[a]				Undeveloped Park Scenario[b]				Developed Park Scenario[c]			
	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)	Child (1 to 6)	Youth (7 to 18)	Adult (19 to 55)	Senior Adult (56 to 70)
Dermal Contact with Surface water while wading												
SA (cm^2)[g]	NA	5130	NA	NA	NA	5130	NA	NA	NA	5130	NA	NA
DA_e (mg/cm^2 – event)	NA	csv	NA	NA	NA	csv	NA	NA	NA	csv	NA	NA
ET (hr/day)[g]	NA	1	NA	NA	NA	1	NA	NA	NA	1	NA	NA
EF (days/yr)[g]	NA	52	NA	NA	NA	52	NA	NA	NA	52	NA	NA
Incidental Ingestion of Sediment while wading												
IR (g/day)[g]	NA	0.1	NA	NA	NA	0.1	NA	NA	NA	0.1	NA	NA
FI (unitless)[h]	NA	0.06	NA	NA	NA	0.06	NA	NA	NA	0.06	NA	NA
EF (days/yr)[g]	NA	52	NA	NA	NA	52	NA	NA	NA	52	NA	NA

Notes:

[a] Assumes a wildlife reserve with no developed recreational facilities and activities limited to hiking, birdwatching and walking. No restroom facilities are provided which limits exposure time per day. A wildlife reserve with walking trails with these activities is assumed to encourage adult use of the site.

[b] Assumes an undeveloped neighborhood park (no restrooms) with benches and grassy fields that allow activities such as ballplaying, picnicing, and possibly, dirt–bike riding. A neighborhood park with these activities is assumed to encourage use by a youth.

[c] Assumes developed recreational facilities with playgrounds, walking trails, and ballfields with organized sport teams. Restroom facilities are provided which allows a longer exposure time per day. A developed neighborhood park is assumed to encourage use by all age groups but especially a youth and child.

[d] EPA 1990d Exposure Factor Handbook

[e] See section A.3.4.6.2 for an explanation of exposure time (ET), exposure frequency (EF), and exposure duration (ED).

[f] EPA 1992e

[g] Assumes youth wades in Paddys Run 52 times per year, one hour per event. Assumes the wader swallows approximatly 0.035 L/event of surface water and 30% of the UCL body surface area contacts the water.

[h] Fractions Ingested (FIs) are based upon the number of hours spent on site out of 16 waking hours (Response to comment #265 of the OU4 RI – DOE 1993e)

[i] EPA 1989a

TABLE A.3-22
SUMMARY OF PARAMETERS FOR BIOUPTAKE MODELS

Parameter:	Value:	Units:	Reference:
Irrigation rate (d_w):	0.081	$L/m^2/hr$	USDA 1970
Typical settling velocity (d_d):	6.48	m/hr	EPA 1991f
Fraction of deposited dust retained on crops (r_d):	0.25	unitless	NRC 1977
Fraction of irrigation deposits retained on crops (r_w):	0.20	unitless	NRC 1977
Removal rate by weathering (λ_u):	0.0021	hr^{-1}	NRC 1977
Growing season for crops (t_{ec}):	1440	hr	NRC 1977
Growing season for forage (t_{eg}):	720	hr	NRC 1977
Growing season for feed (t_{ef}):	3312	hr	NRC 1977
Agricultural yield of food crops (Y):	1,500	g/m^2	USDA 1979
Agricultural yield of forage (Y):	800	g/m^2	USDA 1979
Fraction of year plants are downwind (f_d):	LD[a]	unitless	-
Fraction of year plants are irrigated (f_w):	1.0[b]	unitless	NRC 1977
Period soil is exposed to contaminated water (t_{bw}):	8760000	hr	Assumed
Period soil is exposed to airborne emissions (t_{bd}):	8760000	hr	Assumed
Effective surface density (ρ):	225000	g/m^2	c
Cattle ingestion rate of feed (Q_f):	25000	g/day	NRC 1977
Cattle ingestion rate of forage (Q_g):	25000	g/day	NRC 1977
Cattle incidental ingestion rate of soil (Q_s):	500	g/day	Zach & Mayoh 1984
Cattle ingestion rate of water (Q_w):			
Milk cow:	60	L/day	NRC 1977
Beef cow:	50	L/day	NRC 1977
Delay between harvest and consumption of vegatables (t_{bv}):	24	hr	NRC 1977
Delay between harvest and consumption of fruit (t_{bc}):	720	hr	Assumed
Delay between harvest and consumption of feed (t_{bf}):	2160	hr	NRC 1977
Delay between harvest and consumption of forage (t_{bg}):	0	hr	NRC 1977
Delay between milking and consumption (t_M):	48	hr	NRC 1977
Delay between slaughter and consumption (t_B):	480	hr	NRC 1977
Depth of root zone in soil (z):	15	cm	Assumed
Percolation rate through soil (V_w):	0.00177	cm/hr	Value for OU5
Density of soil in root zone (σ):	1.5	g/cm^3	Assumed
Moisture fraction of surface soil (θ):	0.17	unitless	Measured

[a] Location dependent.

[b] The fraction of time plants are irrigated is implicityly included in the irrigation rate. To avoid using this parameter twice, f_d has been set to 1.0.

[c] Corresponds to a density of 1.5 g/cm^3 and a depth of 15 cm. Moist bulk densities of surface soil range from 1.4 to 1.55 g/cm^3 at the FEMP (USDA 1982).

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TABLE A.3–23
PARTITIONING COEFFICIENTS AND BIOTRANSFER FACTORS FOR CONSTITUENTS OF POTENTIAL CONCERN FOR OU5

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
Cs_{137}	NA	1.81E+03	8.00E−02	3.00E−02	7.00E−03	2.00E−05	2.00E+00	4.35E−08	2.62E−06
Np_{237}	NA	5.50E+01	1.00E−01	1.00E−02	5.00E−06	5.50E−08	1.00E−02	1.43E−06	3.70E−11
Pb_{210}	NA	3.00E+03	4.50E−02	9.00E−03	2.50E−04	3.00E−07	1.00E−01	6.52E−08	3.55E−06
Pu_{238}	NA	1.70E+03	4.50E−04	4.50E−05	1.00E−07	5.00E−10	2.50E−02	4.63E−08	9.02E−07
$Pu_{239/240}$	NA	1.70E+03	4.50E−04	4.50E−05	1.00E−07	5.00E−10	2.50E−02	4.63E−08	3.28E−09
Ra_{226}	NA	6.96E+02	1.50E−02	1.50E−03	4.50E−04	2.50E−07	5.00E−02	2.81E−07	4.95E−08
Ra_{226}	NA	6.96E+02	1.50E−02	1.50E−03	4.50E−04	2.50E−07	5.00E−02	1.13E−07	4.95E−08
Ra_{228}	NA	6.96E+02	1.50E−02	1.50E−03	4.50E−04	2.50E−07	5.00E−02	2.81E−07	1.37E−05
Ru_{106}	NA	8.00E+02	7.50E−02	2.00E−02	6.00E−07	2.00E−06	1.00E−02	9.83E−08	7.84E−05
Sr_{90}	NA	1.00E+01	2.50E+00	2.50E−01	1.50E−03	3.00E−07	3.00E−02	7.78E−06	2.77E−06
Tc_{99}	NA	1.18E−01	9.50E+00	1.50E+00	1.00E−02	8.50E−06	1.50E−02	3.40E−04	3.71E−10
Th_{228}	NA	5.80E+03	8.50E−04	8.50E−05	5.00E−06	6.00E−09	3.00E−02	3.37E−08	4.14E−05
Th_{230}	NA	5.80E+03	8.50E−04	8.50E−05	5.00E−06	6.00E−09	3.00E−02	1.36E−08	1.03E−09
$Th_{232+10d}$	NA	5.80E+03	8.50E−04	8.50E−05	5.00E−06	6.00E−09	3.00E−02	3.37E−08	5.63E−15
Th_{232}	NA	5.80E+03	8.50E−04	8.50E−05	5.00E−06	6.00E−09	3.00E−02	1.36E−08	5.63E−15
U_{234}	NA	1.20E+01	8.50E−03	4.00E−03	6.00E−04	2.00E−07	2.00E−03	6.49E−06	3.24E−10
$U_{235/236}$	NA	1.20E+01	8.50E−03	4.00E−03	6.00E−04	2.00E−07	2.00E−03	6.49E−06	1.12E−13
U_{238}	NA	1.20E+01	8.50E−03	4.00E−03	6.00E−04	2.00E−07	2.00E−03	6.49E−06	1.77E−14
Rn_{222}	NA	NA	NA	NA	NA	NA	NA	ND	7.55E−03

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TABLE A.3–23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
acetone	9.46E−01	1.09E−02	4.00E+01	4.00E+01	7.51E−09	2.38E−11	5.65E−01	6.33E−04	1.03E−03
benzene	1.35E+02	2.59E+00	2.27E+00	2.27E+00	1.07E−06	3.39E−09	2.45E+01	2.91E−05	4.00E−05
bis(2−chloroisopropyl)ether	7.94E+01	5.00E−01	3.09E+00	3.09E+00	6.31E−07	1.99E−09	1.64E+01	1.28E−04	ND
bromoform	2.40E+02	1.51E+00	1.63E+00	1.63E+00	1.91E−06	6.03E−09	3.79E+01	4.84E−05	ND
bromodichloromethane	1.23E+02	1.45E+00	2.40E+00	2.40E+00	9.77E−07	3.09E−09	2.28E+01	5.03E−05	ND
dibromochloromethane	1.74E+02	1.10E+00	1.96E+00	1.96E+00	1.38E−06	4.37E−09	2.97E+01	6.50E−05	ND
carbon tetrachloride	5.37E+02	3.38E+00	1.02E+00	1.02E+00	4.27E−06	1.35E−08	6.99E+01	2.25E−05	ND
carbon disulfide	1.45E+02	9.13E−01	2.18E+00	2.18E+00	1.15E−06	3.64E−09	2.59E+01	7.66E−05	ND
chloroform	9.33E+01	1.79E+00	2.81E+00	2.81E+00	7.41E−07	2.34E−09	1.85E+01	4.13E−05	1.58E−04
chloromethane	8.13E+00	5.12E−02	1.15E+01	1.15E+01	6.46E−08	2.04E−10	2.89E+00	4.78E−04	ND
1,1−dichloroethane	3.02E+01	1.18E+00	5.40E+00	5.40E+00	2.40E−07	7.59E−10	7.85E+00	6.08E−05	4.71E−05
1,1−dichloroethene	1.35E+02	5.78E−01	2.27E+00	2.27E+00	1.07E−06	3.39E−09	2.45E+01	1.14E−04	1.60E−04
1,2−dichloroethane	1.23E+02	2.36E+00	2.40E+00	2.40E+00	9.77E−07	3.09E−09	2.28E+01	3.18E−05	3.96E−05
1,2−dichloroethene	1.35E+02	5.78E−01	2.27E+00	2.27E+00	1.07E−06	3.39E−09	2.45E+01	1.14E−04	3.96E−05
ethylbenzene	1.40E+03	2.68E+01	5.88E−01	5.88E−01	1.11E−05	3.52E−08	1.45E+02	2.92E−06	1.27E−04
hexachloroethane	8.51E+03	5.36E+01	2.07E−01	2.07E−01	6.76E−05	2.14E−07	5.71E+02	1.46E−06	ND
methylene chloride	1.78E+01	3.41E−01	7.33E+00	7.33E+00	1.41E−07	4.47E−10	5.25E+00	1.73E−04	1.03E−03
styrene	8.91E+02	5.61E+00	7.64E−01	7.64E−01	7.08E−06	2.24E−08	1.03E+02	1.37E−05	ND
1,1,2,2−tetrachloroethane	2.46E+02	4.70E+00	1.61E+00	1.61E+00	1.95E−06	6.18E−09	3.86E+01	1.63E−05	1.58E−04
tetrachloroethene	2.51E+03	6.49E+00	4.20E−01	4.20E−01	2.00E−05	6.31E−08	2.26E+02	1.19E−05	1.80E−05
toluene	5.37E+02	9.38E+00	1.02E+00	1.02E+00	4.27E−06	1.35E−08	7.00E+01	8.29E−06	1.38E−04
trichloroethene	2.51E+02	6.49E+00	1.59E+00	1.59E+00	2.00E−06	6.31E−09	3.93E+01	1.19E−05	1.75E−05
1,1,1−trichloroethane	2.95E+02	5.65E+00	1.45E+00	1.45E+00	2.34E−06	7.41E−09	4.44E+01	1.36E−05	2.63E−05

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TABLE A.3–23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
1,1,2–trichloroethane	1.12E+02	7.07E–01	2.53E+00	2.53E+00	8.91E–07	2.82E–09	2.13E+01	9.59E–05	ND
vinyl chloride	2.29E+01	7.62E–02	6.34E+00	6.34E+00	1.82E–07	5.75E–10	6.36E+00	4.15E–04	1.00E–05
1,2,4–trichlorobenzene	1.00E+04	6.30E+01	1.89E–01	1.89E–01	7.94E–05	2.51E–07	6.46E+02	1.25E–06	ND
1,2–dichloropropane	1.00E+02	6.30E–01	2.70E+00	2.70E+00	7.94E–07	2.51E–09	1.95E+01	1.06E–04	ND
1,4–dichlorobenzene	2.45E+03	1.55E+01	4.25E–01	4.25E–01	1.95E–05	6.17E–08	2.22E+02	5.05E–06	ND
2–hexanone	2.40E+01	4.59E–01	6.17E+00	6.17E+00	1.91E–07	6.03E–10	6.59E+00	1.37E–04	ND
3–chloropropene	9.12E+00	5.75E–02	1.08E+01	1.08E+01	7.24E–08	2.29E–10	3.16E+00	4.61E–04	ND
chlorobenzene	3.16E+02	1.99E+00	1.39E+00	1.39E+00	2.51E–06	7.94E–09	4.67E+01	3.74E–05	ND
hexachlorobenzene	2.04E+05	1.29E+03	3.30E–02	3.30E–02	1.62E–03	5.13E–06	6.39E+03	6.12E–08	ND
2,4,6–trichlorophenol	5.00E+03	3.15E+01	2.82E–01	2.82E–01	3.97E–05	1.26E–07	3.81E+02	2.49E–06	ND
2,4–dichlorophenol	8.32E+02	5.24E+00	7.95E–01	7.95E–01	6.61E–06	2.09E–08	9.75E+01	1.47E–05	ND
2,4–dinitrophenol	3.50E+01	2.21E–01	4.96E+00	4.96E+00	2.78E–07	8.79E–10	8.78E+00	2.36E–04	ND
2,4–dinitrotoluene	9.55E+01	6.02E–01	2.78E+00	2.78E+00	7.59E–07	2.40E–09	1.88E+01	1.10E–04	ND
2,6–dinitrotoluene	5.25E+01	3.31E–01	3.93E+00	3.93E+00	4.17E–07	1.32E–09	1.19E+01	1.77E–04	ND
2–chlorophenol	1.41E+02	2.71E+00	2.22E+00	2.22E+00	1.12E–06	3.54E–09	2.53E+01	2.79E–05	ND
2–methylnaphthalene	7.24E+03	1.39E+02	2.28E–01	2.28E–01	5.75E–05	1.82E–07	5.05E+02	5.65E–07	ND
2–nitroanaline	6.80E+01	4.28E–01	3.38E+00	3.38E+00	5.40E–07	1.71E–09	1.45E+01	1.45E–04	ND
2–nitrophenol	6.17E+01	3.88E–01	3.58E+00	3.58E+00	4.90E–07	1.55E–09	1.35E+01	1.57E–04	ND
3,3–dichlorobenzidene	3.24E+03	2.04E+01	3.62E–01	3.62E–01	2.57E–05	8.13E–08	2.74E+02	3.84E–06	ND
3–nitroanaline	6.80E+01	4.28E–01	3.38E+00	3.38E+00	5.40E–07	1.71E–09	1.45E+01	1.45E–04	ND
4–methylphenol	7.94E+01	1.52E+00	3.09E+00	3.09E+00	6.31E–07	1.99E–09	1.64E+01	4.82E–05	1.03E–03
4–chloro–3–methylphenol	1.26E+03	7.93E+00	6.25E–01	6.25E–01	1.00E–05	3.16E–08	1.34E+02	9.78E–06	ND

TABLE A.3-23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
4-nitrophenol	8.13E+01	1.60E+00	3.05E+00	3.05E+00	6.46E-07	2.04E-09	1.67E+01	4.59E-05	2.90E-03
bis(2-ethylhexyl)phthalate	2.00E+05	1.26E+03	3.34E-02	3.34E-02	1.59E-03	5.02E-06	6.29E+03	6.24E-08	ND
carbazole	3.24E+03	2.04E+01	3.62E-01	3.62E-01	2.57E-05	8.14E-08	2.74E+02	3.83E-06	ND
di-n-octylphthalate	1.58E+09	3.03E+07	1.87E-04	1.87E-04	1.26E+01	3.97E-02	5.77E+06	2.60E-12	7.92E-05
n-nitrosodiphenylamine	3.16E+03	2.59E+01	3.67E-01	3.67E-01	2.51E-05	7.94E-08	2.69E+02	3.02E-06	2.12E-04
n-nitrosodipropylamine	2.04E+01	1.29E-01	6.77E+00	6.77E+00	1.62E-07	5.13E-10	5.83E+00	3.25E-04	ND
pentachlorophenol	7.24E+05	1.95E+03	1.59E-02	1.59E-02	5.75E-03	1.82E-05	1.67E+04	4.03E-08	1.90E-05
tributyl phosphate	1.00E+04	6.30E+01	1.89E-01	1.89E-01	7.94E-05	2.51E-07	6.46E+02	1.25E-06	ND
acenaphthylene	1.17E+04	2.30E+02	1.72E-01	1.72E-01	9.33E-05	2.95E-07	7.30E+02	3.42E-07	1.20E-04
benzo(a)anthracene	4.57E+05	7.66E+03	2.07E-02	2.07E-02	3.63E-03	1.15E-05	1.18E+04	1.03E-08	1.00E-05
benzo(a)pyrene	1.26E+06	1.83E+04	1.15E-02	1.15E-02	1.00E-02	3.16E-05	2.55E+04	4.30E-09	1.00E-05
benzo(b)fluoranthene	1.32E+06	7.11E+04	1.12E-02	1.12E-02	1.05E-02	3.31E-05	2.64E+04	1.11E-09	1.20E-05
benzo(k)fluoranthene	6.92E+06	1.32E+05	4.31E-03	4.31E-03	5.50E-02	1.74E-04	9.30E+04	5.96E-10	3.30E-06
benzo(g,h,i)perylene	1.70E+07	3.25E+05	2.56E-03	2.56E-03	1.35E-01	4.27E-04	1.84E+05	2.42E-10	1.10E-05
chrysene	4.57E+05	7.66E+03	2.07E-02	2.07E-02	3.63E-03	1.15E-05	1.18E+04	1.03E-08	7.10E-06
dibenzo(a,h)anthracene	6.92E+06	1.79E+04	4.31E-03	4.31E-03	5.50E-02	1.74E-04	9.30E+04	4.39E-09	7.50E-06
indeno(1,2,3-cd)pyrene	3.80E+06	8.75E+05	6.09E-03	6.09E-03	3.02E-02	9.55E-05	5.90E+04	8.99E-11	1.00E-05
fluoranthene	8.91E+04	4.09E+03	5.33E-02	5.33E-02	7.08E-04	2.24E-06	3.40E+03	1.92E-08	1.60E-05
phenanthrene	3.72E+04	5.55E+02	8.84E-02	8.84E-02	2.95E-04	9.33E-07	1.75E+03	1.42E-07	3.60E-05
pyrene	1.51E+05	2.90E+03	3.93E-02	3.93E-02	1.20E-03	3.79E-06	5.08E+03	2.71E-08	3.80E-06
aroclor-1254	1.07E+06	2.05E+04	1.27E-02	1.27E-02	8.50E-03	2.69E-05	2.25E+04	3.84E-09	ND
aroclor-1260	1.40E+07	2.47E+04	2.87E-03	2.87E-03	1.11E-01	3.52E-04	1.59E+05	3.18E-09	ND

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TABLE A.3–23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
4,4–dde	5.01E+05	3.16E+03	1.97E–02	1.97E–02	3.98E–03	1.26E–05	1.26E+04	2.49E–08	ND
4,4–ddt	2.29E+06	1.44E+04	8.16E–03	8.16E–03	1.82E–02	5.75E–05	4.01E+04	5.45E–09	ND
aldrin	1.02E+03	6.45E+00	7.05E–01	7.05E–01	8.13E–06	2.57E–08	1.14E+02	1.20E–05	ND
endrin	3.63E+04	2.29E+02	8.96E–02	8.96E–02	2.88E–04	9.12E–07	1.72E+03	3.44E–07	ND
heptachlor	2.00E+04	1.26E+02	1.27E–01	1.27E–01	1.58E–04	5.01E–07	1.09E+03	6.25E–07	ND
heptachlor epoxide	5.01E+02	3.16E+00	1.07E+00	1.07E+00	3.98E–06	1.26E–08	6.64E+01	2.41E–05	ND
alpha bhc	6.50E+03	4.10E+01	2.42E–01	2.42E–01	5.16E–05	1.63E–07	4.65E+02	1.92E–06	ND
beta bhc	6.00E+03	3.78E+01	2.54E–01	2.54E–01	4.77E–05	1.51E–07	4.38E+02	2.07E–06	ND
delta bhc	1.26E+04	7.94E+01	1.65E–01	1.65E–01	1.00E–04	3.16E–07	7.70E+02	9.90E–07	ND
dieldrin	3.63E+04	2.29E+02	8.96E–02	8.96E–02	2.88E–04	9.12E–07	1.72E+03	3.44E–07	ND
diazinon	6.46E+03	4.07E+01	2.43E–01	2.43E–01	5.13E–05	1.62E–07	4.63E+02	1.93E–06	ND
chlordane	3.47E+05	2.18E+03	2.43E–02	2.43E–02	2.75E–03	8.71E–06	9.56E+03	3.60E–08	ND
endosulfan I	3.55E+03	2.24E+01	3.44E–01	3.44E–01	2.82E–05	8.91E–08	2.94E+02	3.50E–06	ND
endosulfan II	4.17E+03	2.63E+01	3.13E–01	3.13E–01	3.31E–05	1.05E–07	3.32E+02	2.98E–06	ND
gamma chlordane	2.95E+05	1.86E+03	2.67E–02	2.67E–02	2.34E–03	7.41E–06	8.46E+03	4.23E–08	ND
toxaphene	6.61E+04	4.16E+02	6.34E–02	6.34E–02	5.25E–04	1.66E–06	2.71E+03	1.89E–07	ND
lindane	5.25E+03	3.31E+01	2.74E–01	2.74E–01	4.17E–05	1.32E–07	3.96E+02	2.37E–06	ND
methoxychlor	4.79E+04	3.02E+02	7.63E–02	7.63E–02	3.80E–04	1.20E–06	2.12E+03	2.61E–07	ND
malathion	7.76E+02	4.89E+00	8.27E–01	8.27E–01	6.16E–06	1.95E–08	9.25E+01	1.57E–05	ND
cyanide	2.24E+00	4.29E–02	2.43E+01	2.43E+01	1.78E–08	5.63E–11	1.09E+00	5.04E–04	ND
aluminum	NA	1.50E+03	ND	ND	ND	ND	ND	5.24E–08	ND

TABLE A.3-23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
antimony	NA	2.50E+02	2.00E-01	3.00E-02	1.00E-04	1.00E-06	1.00E+00	3.15E-07	ND
arsenic	NA	2.00E+02	4.00E-02	6.00E-03	6.00E-05	2.00E-06	4.40E+01	3.93E-07	ND
barium	NA	1.14E+03	1.50E-01	1.50E-02	3.50E-04	1.50E-07	ND	6.90E-08	ND
beryllium	NA	1.30E+03	1.00E-02	1.50E-03	9.00E-07	1.00E-06	1.90E+01	6.05E-08	ND
boron	NA	3.00E+00	4.00E+00	2.00E+00	1.50E-03	8.00E-07	ND	2.53E-05	ND
cadmium	NA	5.10E+02	5.50E-01	1.50E-01	1.00E-03	5.50E-07	8.10E+01	1.54E-07	ND
chromium vi	NA	1.50E+03	7.50E-03	4.50E-03	1.50E-03	5.50E-06	1.60E+01	5.24E-08	ND
cobalt	NA	5.50E+02	2.00E-02	7.00E-03	2.00E-03	2.00E-05	ND	1.43E-07	ND
copper	NA	1.25E+02	4.00E-01	2.50E-01	1.50E-03	1.00E-05	2.00E+02	6.29E-07	ND
lead	NA	3.00E+03	4.50E-02	9.00E-03	2.50E-04	3.00E-07	4.90E+01	2.62E-08	ND
manganese	NA	1.80E+02	2.50E-01	5.00E-02	3.50E-04	4.00E-07	ND	4.37E-07	ND
manganese	NA	1.80E+02	2.50E-01	5.00E-02	3.50E-04	4.00E-07	ND	4.37E-07	ND
mercury	NA	1.00E+01	9.00E-01	2.00E-01	4.50E-04	2.50E-04	5.50E+03	7.78E-06	ND
molybdenum	NA	9.00E+01	2.50E-01	6.00E-02	1.50E-03	6.00E-06	ND	8.73E-07	ND
nickel	NA	6.50E+02	6.00E-02	6.00E-02	1.00E-03	6.00E-06	4.70E+01	1.21E-07	ND
selenium	NA	7.40E+02	2.50E-02	2.50E-02	4.00E-03	1.50E-05	1.60E+01	1.06E-07	ND
silver	NA	1.80E+02	4.00E-01	1.00E-01	2.00E-02	3.00E-06	3.10E+03	4.37E-07	ND
thallium	NA	1.50E+03	4.00E-03	4.00E-04	2.00E-03	4.00E-05	ND	5.24E-08	ND
uranium-total	NA	1.20E+01	8.50E-03	4.00E-03	6.00E-04	2.00E-07	2.00E-03	6.49E-06	ND
vanadium	NA	1.00E+03	5.50E-03	3.00E-03	2.00E-05	2.50E-06	ND	7.87E-08	ND
zinc	NA	2.40E+03	1.50E+00	9.00E-01	1.00E-02	1.00E-04	4.70E+01	3.28E-08	ND

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TABLE A.3–23
(continue)

Constituents	Kow[a] (ml/ml)	Kd[a] (ml/g)	Soil to Vegetation Biotransfer B_v[b] (unitless)	Soil to Crop Biotransfer B_r[c] (unitless)	Plant to Milk Biotransfer Factor F_{iM}[d] (d/L)	Plant to Beef Biotransfer Factor F_{iB}[e] (d/g)	Surface Water to Fish Biocon. Factor F_N[f] (L/g)	Leaching Coefficient $Lambda_{Li}$[g] (hr^{-1})	Degradation Coefficient $Lambda_{ri}$[h] (hr^{-1})
nitrate	NA	ND	ND	ND	ND	ND	ND	ND	ND
nitrite	NA	ND	ND	ND	ND	ND	ND	ND	ND
fluoride	NA	ND	ND	ND	ND	ND	ND	ND	ND
chloride	NA	ND	ND	ND	ND	ND	ND	ND	ND
sulfate	NA	ND	ND	ND	ND	ND	ND	ND	ND
tetrachlorodibenzo–p–dioxin	6.31E+06	3.98E+04	4.55E–03	4.55E–03	5.01E–02	1.58E–04	8.67E+04	1.98E–09	ND
tetrachlorodibenzofuran	3.40E+07	2.14E+05	1.72E–03	1.72E–03	2.70E–01	8.54E–04	3.12E+05	3.67E–10	ND
pentachlorodibenzofuran	6.20E+06	3.91E+04	4.59E–03	4.59E–03	4.92E–02	1.56E–04	8.55E+04	2.01E–09	ND
hexachlorodibenzo–p–dioxin	6.20E+07	3.91E+05	1.21E–03	1.21E–03	4.92E–01	1.56E–03	4.92E+05	2.01E–10	2.60E–04
hexachlorodibenzofuran	6.20E+07	3.91E+05	1.21E–03	1.21E–03	4.92E–01	1.56E–03	4.92E+05	2.01E–10	2.60E–04
heptachlorodibenzo–p–dioxin	1.58E+08	9.95E+05	7.07E–04	7.07E–04	1.26E+00	3.97E–03	1.00E+06	7.90E–11	2.60E–04
heptachlorodibenzofuran	8.32E+07	5.24E+05	1.02E–03	1.02E–03	6.61E–01	2.09E–03	6.16E+05	1.50E–10	2.60E–04
octachlorodibenzo–p–dioxin	3.98E+08	8.40E+04	4.14E–04	4.14E–04	3.16E+00	1.00E–02	2.02E+06	9.37E–10	2.60E–04
octachlorodibenzofuran	6.02E+08	1.80E+06	3.26E–04	3.26E–04	4.78E+00	1.51E–02	2.77E+06	4.37E–11	2.60E–04

[a] Values are provided in Appendix Q for radionuclides and inorganic chemicals. For organics, K_d calculated from K_{ow}. K_{ow}s calculated from either EPA 1992e "Dermal Exposure Assessment" or EPA WERL Database, Rev.2.

[b] For inorganics, Baes and Sharp, 1984. For organics, Log B_v TF = −1.588 −).578 Log K_{ow}, (Travis and Arms, 1988). Bv is used to calculate Bi(1)

[c] For inorganics, Baes and Sharp, 1984. For organics, Br assumed equal to Bv. B_r is used to calculate $B_{iv(2)}$.

[d] For inorganics, Baes and Sharp, 1984. For organics, Log F_{Mi} = −8.1 + Log K_{ow}, (Travis and arms, 1988).

[e] For inorganics, Baes and Sharp, 1984. For organics, Log F_{Bi} = −7.6 + Log K_{ow}, (Travis and arms, 1988).

[f] For inorganics, refer to *Deminimus Waste Impacts Analysis Methodology*, NUREG/CR–3585,1984.
For organics, Log BCF = 0.76 Log K_{ow} − 0.23 (Lyman, et al. 1982).

[g] Calculated from K_d.

[h] For organics, refer to *Handbook of Environmental Degradation Rates*,Howard, et al., Lewis Publishers, Inc.

ACAD: W:/DATA/CADD/ng96/93121601.DWG 6/18/94 MLS

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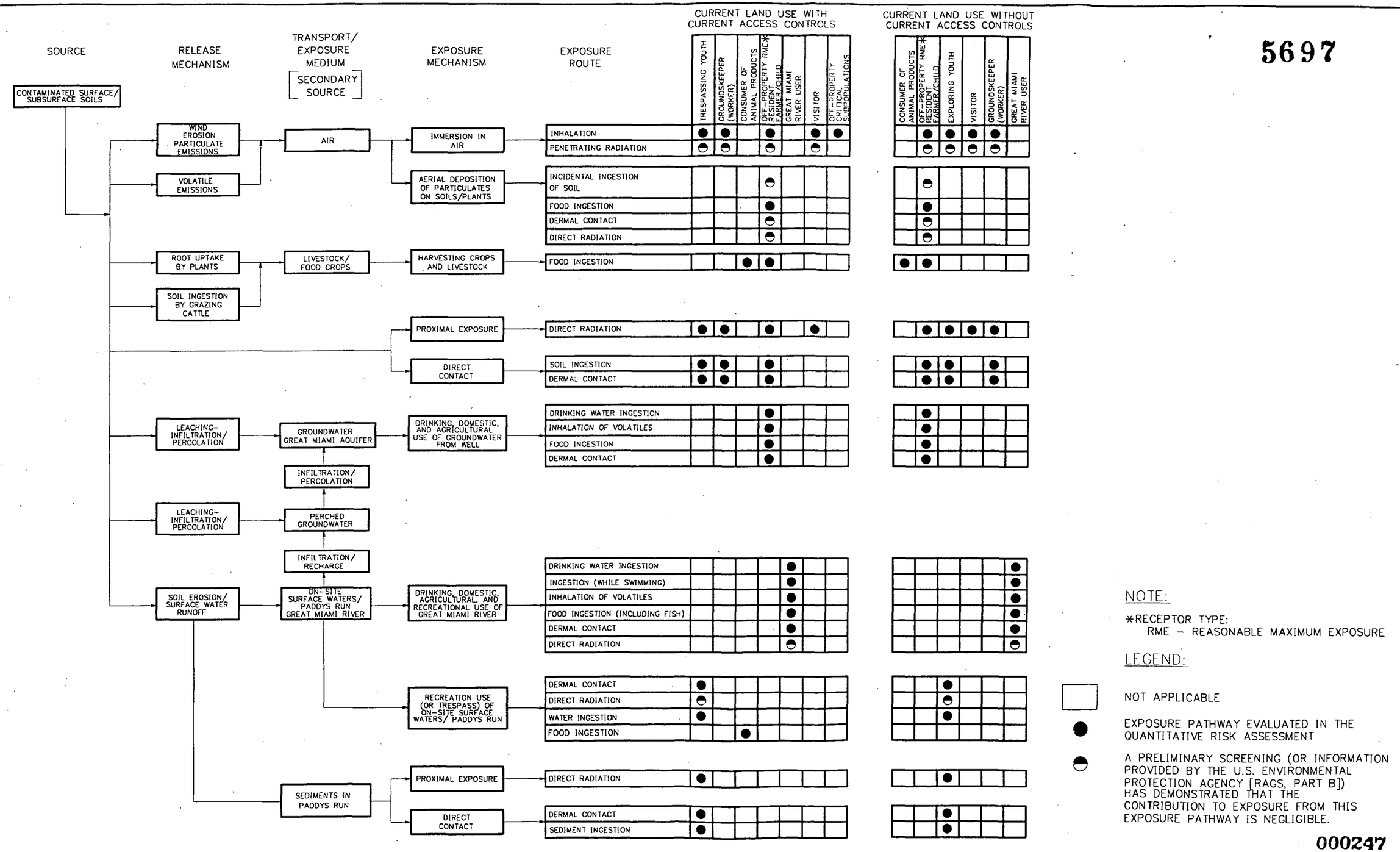

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FIGURE A.3-1
OPERABLE UNIT 5
CONCEPTUAL MODEL
CURRENT SOURCE TERM
AND LAND USE SCENARIOS

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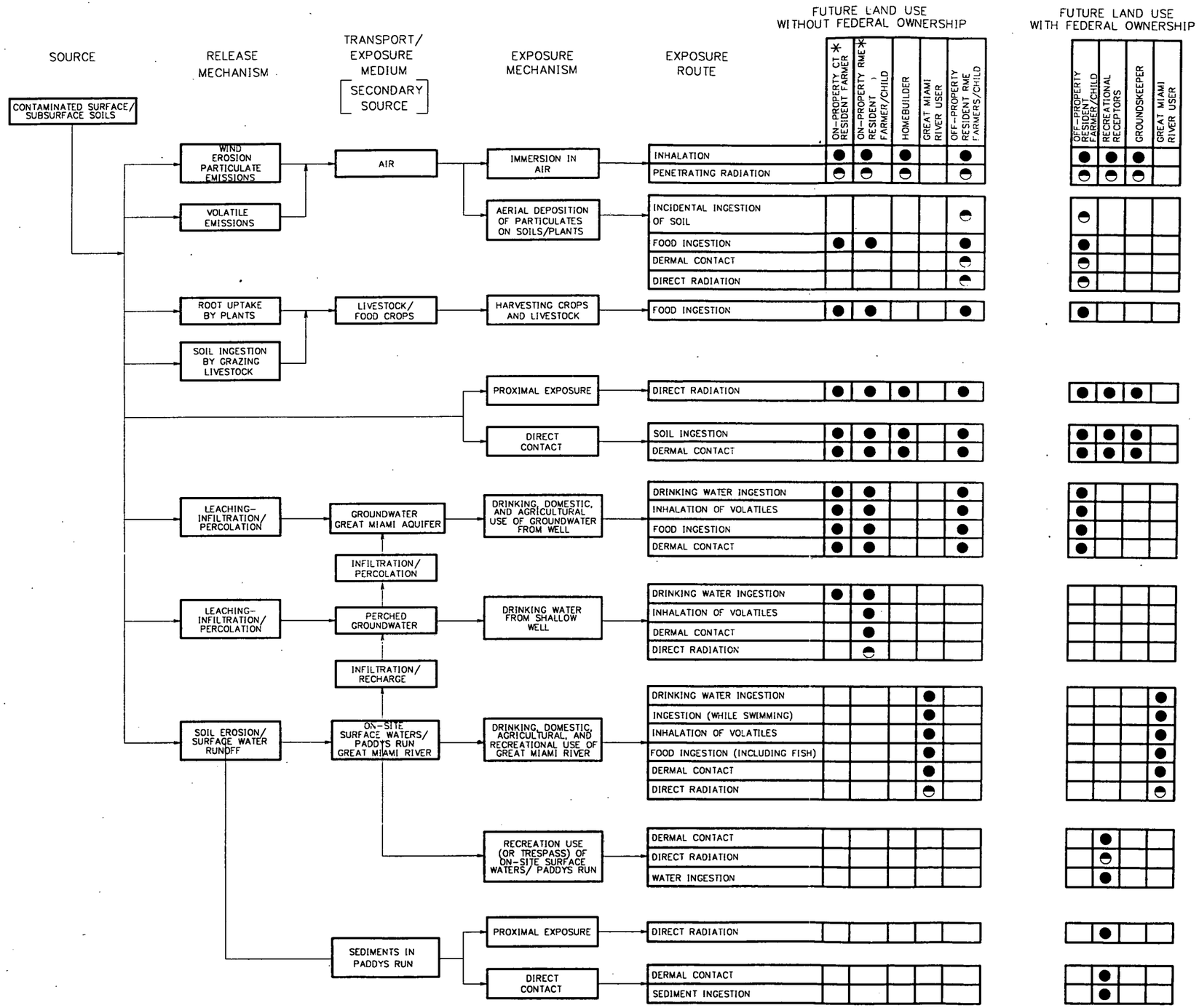

NOTES:

*RECEPTOR TYPE:
CT – CENTRAL TENDENCY
RME – REASONABLE MAXIMUM EXPOSURE

LEGEND:

NOT APPLICABLE

EXPOSURE PATHWAY EVALUATED IN THE QUANTITATIVE RISK ASSESSMENT

A PRELIMINARY SCREENING (OR INFORMATION PROVIDED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY [RAGS, PART B]) HAS DEMONSTRATED THAT THE CONTRIBUTION TO EXPOSURE FROM THIS EXPOSURE PATHWAY IS NEGLIGI

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FIGURE A.3-2
OPERABLE UNIT 5
CONCEPTUAL MODEL
FUTURE SOURCE TERM AND LAND USE SCENARIOS

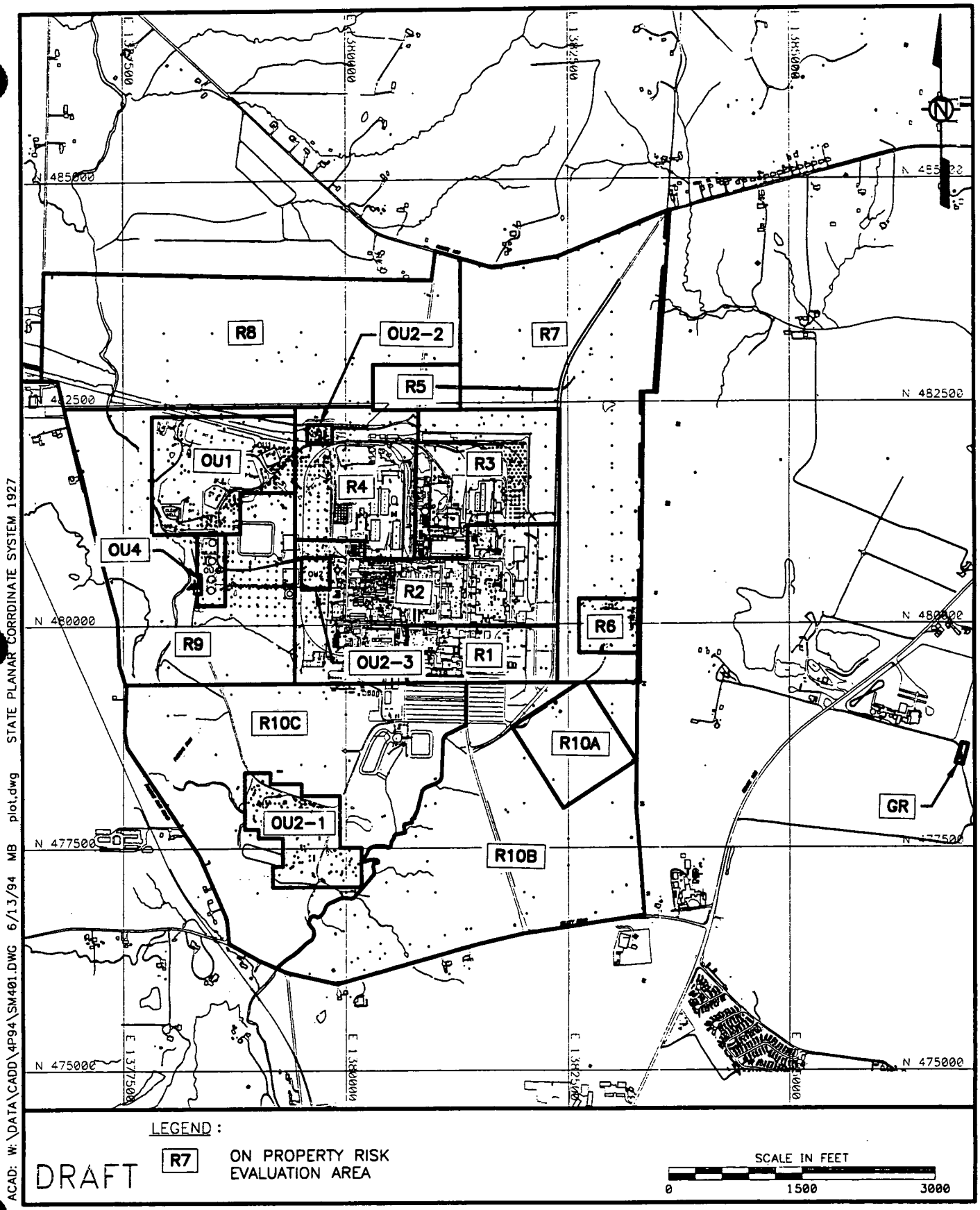

FIGURE A.3-3. ON PROPERTY RISK EVALUATION AREAS (R1-R10)
CURRENT SOURCE TERM AND LAND USE SCENARIO
FOR OPERABLE UNIT 5 BASELINE RISK ASSESSMENT

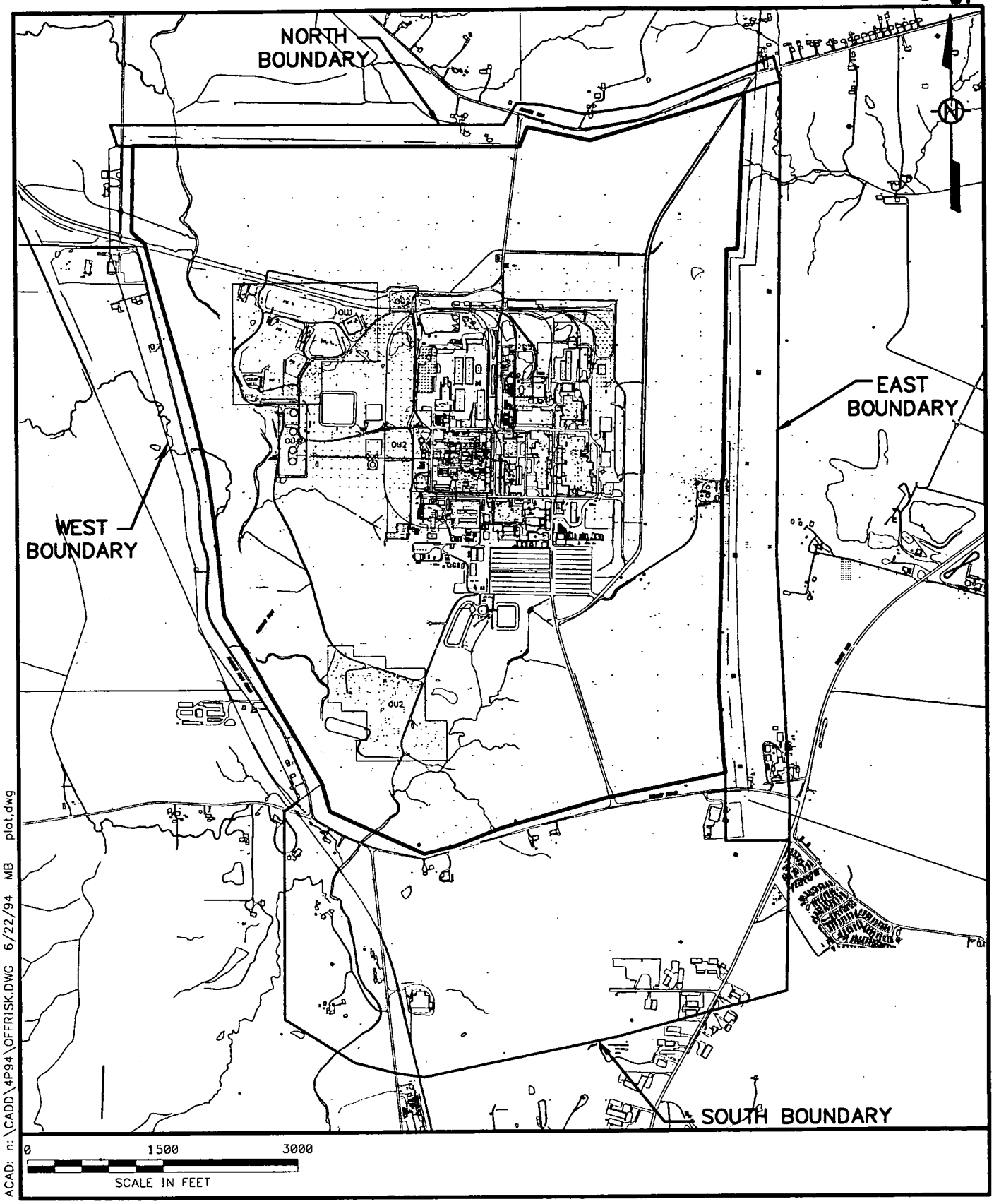

FIGURE A.3-4 RISK EVALUATION AREAS FOR HYPOTHETICAL OFF-PROPERTY FARMER - OPERABLE UNIT 5 BASELINE RISK ASSESSMENT CURRENT SOURCE TERM AND LAND USE SCENARIO

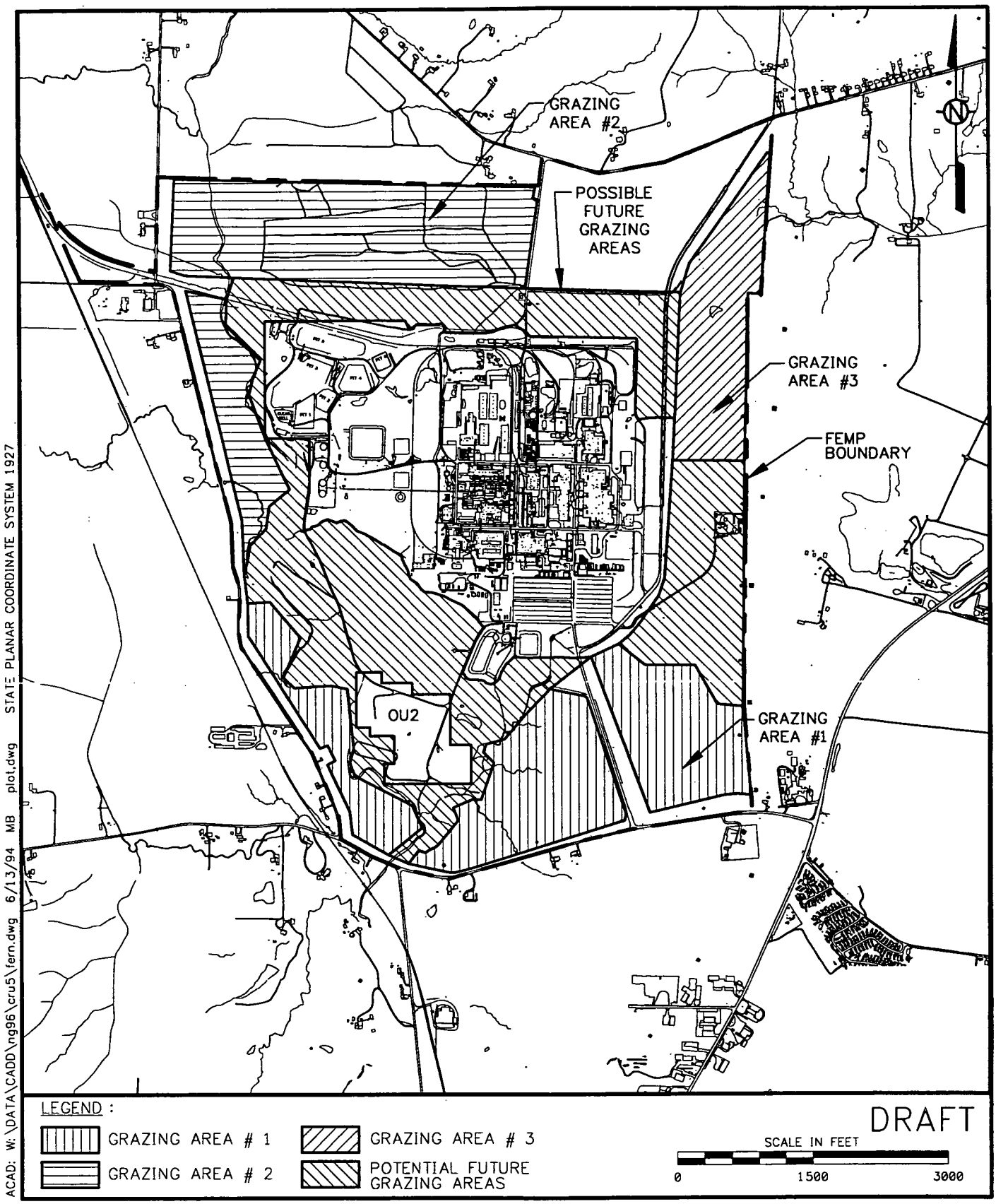

FIGURE A.3-5. CURRENT AND POSSIBLE FUTURE GRAZING AREAS AT THE FEMP

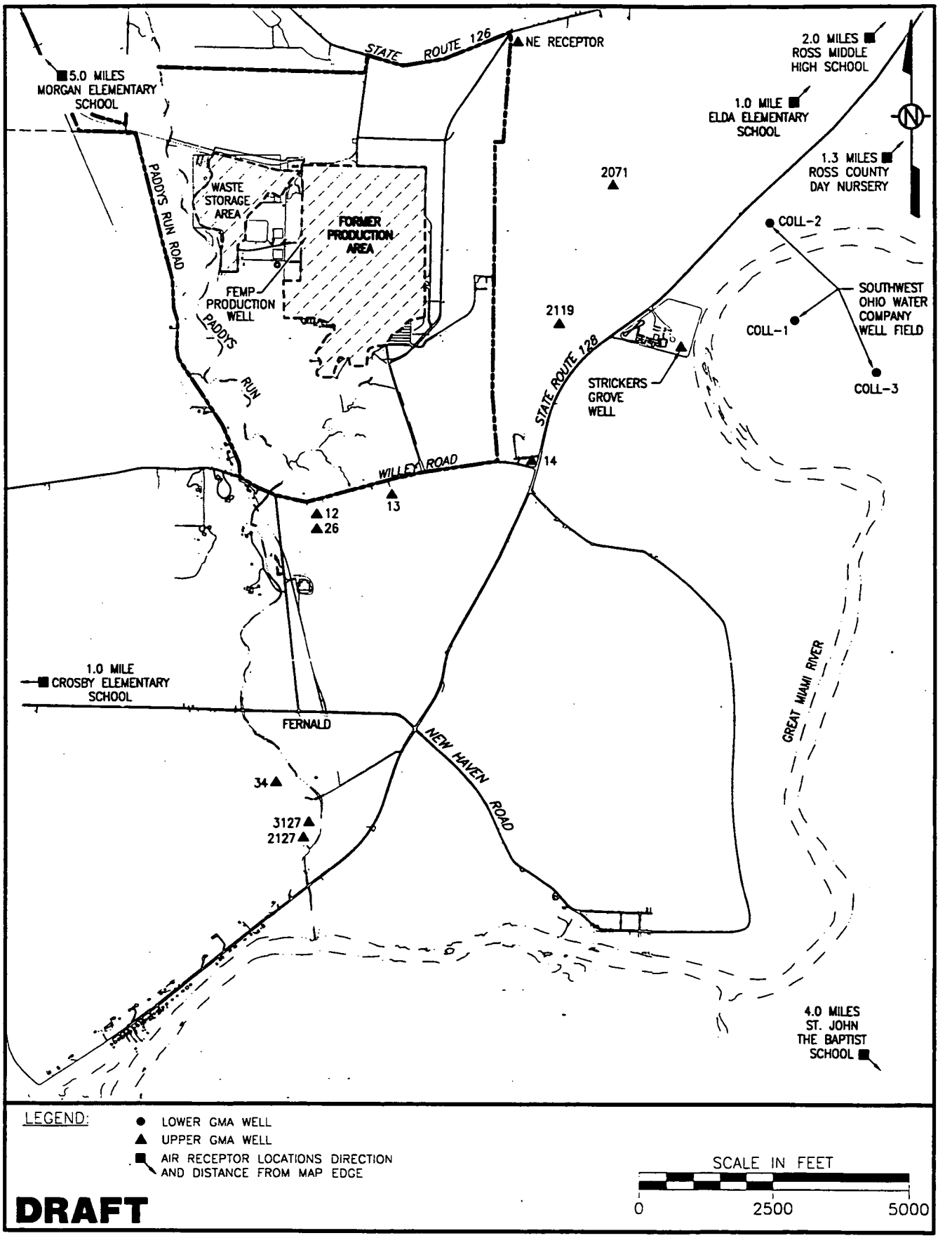

FIGURE A.3-6. OFF PROPERTY RECEPTOR LOCATIONS FOR OU5 FATE & TRANSPORT MODELING AND BASELINE RISK ASSESSMENT

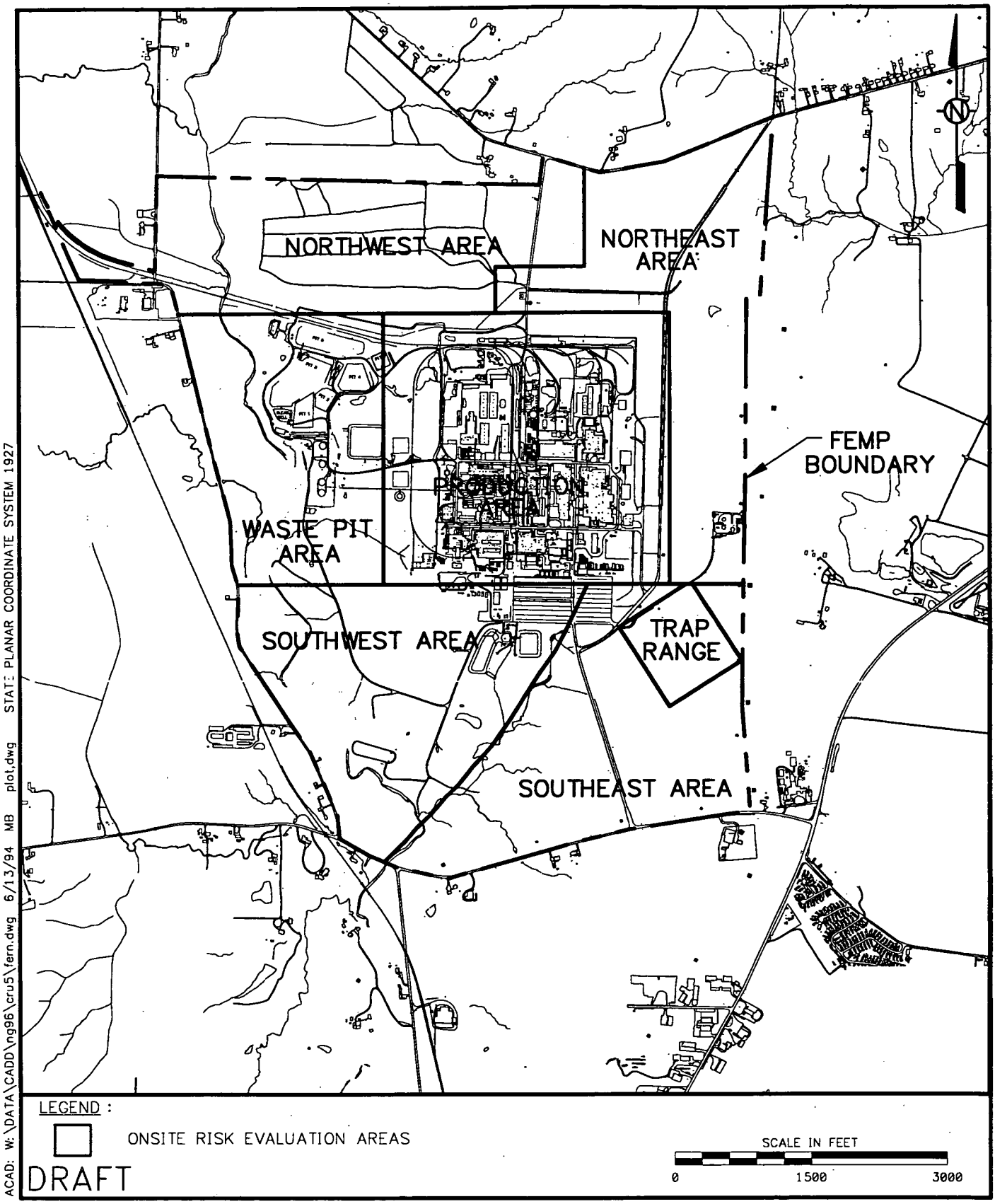

FIGURE A.3–7. ONSITE RISK EVALUATION AREAS FOR OPERABLE UNIT 5 BASELINE RISK ASSESSMENT AT THE FEMP – FUTURE SOURCE TERM AND LAND USE SCENARIO

A.4.0 TOXICITY ASSESSMENT

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This toxicity assessment examines information concerning the potential human health effects of exposure to constituents of potential concern (CPC) in the Operable Unit 5 study area. The goal is to provide, for each listed constituent, a quantitative estimate of the relationship between the magnitude and type of exposure and the severity or probability of human health effects. The toxicity values derived in this section are integrated with the exposure assessment (Section A.3.0) to characterize the potential for adverse health effects to occur.

The toxicological evaluation involves a critical review and interpretation of toxicity data from epidemiological, clinical, animal, and in vitro studies. This review of the scientific data ideally determines both the nature of the health effects associated with a particular chemical, and the probability that a given quantity of a chemical could result in an adverse effect. This analysis defines the relationship between the dose received and the incidence of an adverse effect for those constituents selected in Sections A.2.0 and A.3.0 of this Appendix.

The available toxicological data base is used by the EPA to guide the derivation of cancer slope factors (CSFs) for carcinogenic effects and reference dose (RfD) values for noncarcinogenic effects. This data may include epidemiological studies, long-term animal bioassays, short-term tests, and comparisons of molecular structure. Data from these sources are reviewed to determine if a chemical is likely to be toxic to humans. Due to the lack of available human studies, however, the majority of toxicity data used to derive cancer slope factors and reference dose values comes from animal studies.

The most appropriate animal model, i.e., the species biologically most similar to the human, is identified in the development of the RFD for the evaluation of noncarcinogenic effects. Pharmacokinetic data often enter into this determination. In the absence of sufficient data to identify the most appropriate animal model, the most sensitive animal species is chosen. The RfD is generally derived from the most comprehensive toxicology study that characterizes the dose-response relationship for the critical effect of the chemical. Preference is given to studies using the exposure route of concern; in the absence of such data, however, an RfD for one route of exposure may be extrapolated from data from a study that used a different route of exposure. Such extrapolation must

take into account pharmacokinetic and toxicological differences between routes of exposure. Uncertainty factors are applied to the highest no observed adverse effect level (NOAEL) to adjust for inter- and intraspecies variation, deficiencies in the toxicological database, and use of subchronic rather than chronic animal studies. Additional uncertainty factors may be applied to estimate a NOAEL from a lowest observed adverse effect level (LOAEL) if the key study failed to determine a NOAEL. When chemical-specific data are not sufficient, an RfD may be derived based on data for a chemical with structural and toxicological similarity.

Cancer slope factors (CSFs) for weight-of-evidence Group A (human carcinogen) or B (probable human carcinogen) chemicals are generally derived from cancer studies that adequately identify positive results, the target organ in the test animal, and characterize the dose-response relationship. CSFs are derived for Group C (possible human carcinogen) compounds for which the data are sufficient, but are not derived for Group D (not classified) or E (evidence of noncarcinogenicity in humans) chemicals. No consideration is given to similarity in the animal and human target organ(s), because a chemical capable of inducing cancer in any animal tissue is considered potentially carcinogenic to humans. Preference is given to studies using the route of exposure of concern, in which normal physiologic function was not impaired, and in which exposure occurred during most of the animal's lifetime. Exposure and pharmacokinetic considerations are used to estimate equivalent human doses for computation of the slope factor. When a number of studies of similar quality are available, the data may be combined in the derivation of a slope factor.

Section A.4.1 presents the methodologies, assumptions, and sources of information used to perform the toxicity assessment for CPC detected in Operable Unit 5 environmental media. An uncertainty analysis of the toxicity assessment is presented in Section A.4.2. Toxicological profiles for CPCs identified in Section A.2 are included in Attachment V.

A.4.1 TOXICITY INFORMATION FOR CONSTITUENTS OF POTENTIAL CONCERN

Certain chemical and radiological constituents found in Operable Unit 5 environmental media are known or potential carcinogens in humans. It is generally assumed in health risk assessment that any dose of a carcinogen may result in cancer induction. The EPA assumes that a small number of molecular events can cause single-cell changes that can lead to uncontrolled cellular proliferation. This "nonthreshold" hypothesis assumes there is essentially no level of exposure that does not pose some level of carcinogenic risk.

As pointed out in EPA 1989a, certain fundamental differences exist between radionuclides and chemicals that somewhat simplify toxicity assessment for radionuclides. Because of these differences, the carcinogenic effects of radiation and chemicals are presented separately.

A.4.1.1 Radiocarcinogens

Some elements have isotopes consisting of unstable atoms (i.e., they undergo spontaneous transformation into different kinds of atoms). These isotopes are said to be radioactive, and the transformation process is known as radioactive decay. Radioactive decay is usually accompanied by the emission of charged particles and gamma rays. These emissions are called radiation. There are three types of radiation, which are potentially of concern at the FEMP: alpha, beta, and gamma.

Alpha and beta radiation consist of charged particles capable of ionizing nearby matter. These radiations generally have little ability to penetrate deeply into adjacent matter and can be interdicted by skin, air, and clothing. Alpha particles are composed of two protons and two neutrons. Due to their large mass and charge, alpha particles expend their large energies in short distances, causing damage to living cells. Beta particles are electrons ejected at high speeds from the nucleus of an unstable (radioactive) nucleus. Beta particles are smaller than alpha particles and deposit less energy per volume of tissue than alpha particles. They tend to penetrate further into matter than alpha particles, and can penetrate a few centimeters into exposed skin.

In most cases, the emission of an alpha or beta particle from an atom is followed by a release of x-rays or gamma radiation. Depending on their energies, these radiations may have considerable more penetration power than either alpha or beta radiation and are thus more difficult to shield. Gamma radiation is photon energy emitted from the nucleus of a radioactive atom. Gamma photons penetrate the skin and, with ample energies, can pass through the entire body.

Radiation exposures can be separated into external and internal exposures. External exposure occurs when the radionuclide is outside of the body. Because alpha and beta radiation generally have a low penetrating power, skin and air become effective radiation shields in most cases. Therefore, external exposures to gamma radiation are the primary external exposure concern at environmental levels. Internal exposure occurs after the radionuclide enters the body via inhalation or ingestion. For external exposures, alpha and beta particles become more important because their energy is directly absorbed by living cells.

Radioactive contamination within Operable Unit 5 is characterized as low-level ionizing radiation. The principal adverse biological effect associated with ionizing radiation from radioactive substances in the environment is cell alteration resulting in carcinogonicity, mutagenicity, and teratogenicity, and carcinogenicity. Carcinogenicity is the ability to produce cancer. The carcinogenicity of a radioactive isotope of an element depends on several factors including:

- The type of radiation emitted by the radioisotope
- The energy of the radiation emitted
- The radiological half-life of the isotope
- The retention and concentration characteristics of the radioisotope in the human body
- The radioactive characteristics of decay products (daughter isotopes)

Carcinogenicity is believed to be the limiting deleterious effect at the levels of radiation dose encountered within Operable Unit 5 and has been used as the sole basis for assessing the radiation-related human health risks of sites contaminated with radionuclides (EPA 1989a). The EPA factors used in this report are based solely on carcinogenic effects.

Mutagenesis is genetic mutation, which may be in the nucleus of either body or reproductive cells. Mutations in reproductive cells prior to conception lead to fetal defects. The frequency of radiation-induced genetic impoundment is relatively small in comparison with the magnitude of detriment associated with spontaneously arising genetic diseases.

Teratogenesis occurs after conception and increases the incidence of congenital malformations as a result of permanent structural or functional deviations produced during the growth and development of an embryo. The malformations produced in the embryo depend on which cells, tissues, or organs in the fetus are most-actively differentiating at the time of exposure.

All three types of ionizing radiation (alpha, beta, and gamma) have the ability to produce carcinogenesis, mutagenesis, and teratogenesis. Carcinogenesis is of greatest concern for this report. Table A.4-2 lists the characteristics of radionuclides associated with the FEMP site.

The relationship between radiation dose and health effects is relatively well characterized for high doses (i.e. > 10 rad). Hence risk estimates are strictly applicable only to large populations exposed to high levels of radiation. Lower levels of exposure may constitute a health risk, but a direct cause and effect relationship is difficult to establish because a particular effect in a specific individual can be

produced by many different processes. For low doses, health effects are presumed to occur but can only be estimated statistically. Therefore, the risk of cancer incidence from exposure to low levels of ionizing radiation must be extrapolated from incidence data at higher doses.

Under CERCLA methodology, the EPA assumes a unit intake of, or external exposure to a radionuclide over a lifetime. The annual radiation dose equivalent from the radionuclide to each organ in each year of life is calculated. The average excess number of all types of radiation-induced fatal cancers that occur in a year is then estimated for the corresponding dose equivalents received during that year and relevant preceding years. The excess number of radiation-induced fatal cancers is derived from epidemiological data, extrapolation from high radiation doses to low doses, and hypothetical models for projecting risk through a lifetime. The relationship between cancer incidence and exposure to radioactive materials is quantified by using mathematical extrapolation models, which estimate the largest possible linear slope (within the 95 percent confidence limit) at low extrapolated doses consistent with the data. Because EPA is concerned with assessing cancer incidence, each radionuclide slope factor has been calculated by dividing the excess fatal cancer risk for that radionuclide by the mortality-to-incidence risk ratio (EPA 1989a) for the types of cancer induced by that radionuclide. This "radiocarcinogenicity slope factor" thus is characterized as the "maximum likelihood estimate of the age-averaged lifetime total excess cancer risk per unit intake or exposure" (EPA 1993b). That is, the true risk to humans, although not identifiable is not likely to exceed this upperbound estimate; it may, in fact, be lower.

The EPA Office of Radiation Programs (ORP) has calculated cancer slope factors for radionuclides of potential concern at Superfund sites. These values are listed in EPA's *Health Effects Assessment Summary Tables* (HEAST, Table 4A) (EPA 1993b) and are presented as the risk of cancer incidence per unit intake of a radionuclide contaminant. The radionuclide slope factors used in this assessment are expressed in units of pCi^{-1} or g/pCi_{-y} and are presented in Table A.4-1.

A.4.1.2 Chemical Carcinogens

The toxicity information considered in the assessment of potential carcinogenic risks associated with exposure to chemicals includes (1) a weight-of-evidence classification and (2) a slope factor. The weight-of-evidence classification qualitatively describes the likelihood that a chemical is a human carcinogen and is based on an evaluation of the available data from human and animal studies. A chemical may be placed in one of three groups in EPA's classification system to indicate its potential

for carcinogenic effects: Group A, a human carcinogen; Group B1 or B2, a probable human carcinogen; and Group C, a possible human carcinogen. Chemicals that cannot be classified as human carcinogens because of a lack of data are placed in Group D, and those for which there is evidence of noncarcinogenicity in humans are placed in Group E.

The cancer slope factor is the toxicity value used to quantitatively express the carcinogenic hazard of cancer-causing constituents. It is defined as the upper-bound estimate of the probability of cancer incidence per unit dose averaged over a lifetime. Slope factors are derived from studies of carcinogenicity in humans and/or laboratory animals and are typically calculated for compounds in Groups A, B1, and B2. Slope factors are specific to a chemical and route of exposure and expressed in units of $(mg/kg/day)^{-1}$ for both oral and inhalation routes. The induction of cancer by dermal absorption is evaluated using oral slope factors. Inhalation cancer toxicity values are usually expressed as inhalation unit risks in units of reciprocals $\mu g/m^3$ $(1/\mu g/m^3)$. Because cancer risk characterization requires an estimate of reciprocal dose in units of 1/mg/kg-day, the inhalation unit risk must be converted to the mathematical equivalent of an inhalation cancer slope factor, or risk per unit dose (mg/kg-day). This is done by assuming humans weigh 70 kg and inhale 20 m^3 of air/day, i.e., the inhalation unit risk $(1/\mu g/m^3)$ divided by 20 m^3/day, multiplied by 70 kg and multiplied by 1000 $\mu g/mg$ yields the mathematical equivalent of an inhalation slope factor (1/mg/kg-day). Slope factors for chemical constituents are presented in Table A.4-3. The primary sources of these toxicity values are EPA's *Integrated Risk Information System (IRIS)* (EPA 1994a) and the quarterly updated HEAST (EPA 1994b). Other EPA sources of cancer slope factors (e.g., the U.S. EPA, office of Research and Development, Environmental Criteria and Assessment Office were also consulted when available. Surrogate chemicals were not used for cancer slope factors derivation unless the chemical similarity was very close and the derivation was highly defensible.

The following exceptions, where information from one chemical was used to model a compound class, are noted:

- The carcinogenicity of all polychlorinated biphenyl (PCB) isomers is assumed to be equal to the carcinogenicity of Aroclor-1260 because dose-response data for other isomers are inconclusive.
- The carcinogenicity of dioxins and furans are determined using EPA's revised 1989 "Toxicity Equivalency Factors" (TEFs) (EPA 1990d). These TEFs were determined with the basic assumption that all dioxins and furans are carcinogenic.

- The carcinogenicity of PAHs is determined initially using the benzo(a)pyrene cancer slope factors, and refined using a relative potency approach (Clement 1988, 1990).

For risk assessment purposes, mixtures of chlorinated dibenzo-p-dioxins (CDDs) and chlorinated dibenzofurans (CDFs) can be evaluated using EPA's toxicity equivalency method. This approach, based on available toxicological data, uses derived TEFs to convert the concentration of CDD or CDF congeners into an equivalent concentration of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD). Table A.4-4 presents the TEFs for a variety of CDD and CDF congeners. Congeners containing chlorines at the 2,3,7, and 8 positions are considered to be more toxic, and congeners without chlorines at those positions are assigned a TEF of "0." However, to be more conservative, all unspecified congeners are assumed to be the more toxic form.

Carcinogenic risk associated with PAHs will be evaluated by an iterative process. In the first step, carcinogenic risk for all Class B2 PAHs will be evaluated using the cancer slope factor for benzo(a)pyrene (BaP). If total cancer risks are determined to be in the range of 10^{-4} and 10^{-6} using the BaP-equivalent method, risk estimates are refined by applying the relative potency approach described by Clement (1988 and 1990). This approach, approved by EPA Region V, considers the relative potency of the individual PAHs and allows site-specific relative concentrations to be expressed in the risk assessment. The relative potency factors for PAHs are presented in Table A.4-5.

A.4.1.3 Noncarcinogenic Chemicals

For noncarcinogens, it is assumed that a dose exists below which no adverse health effects will be seen. Below this "threshold" dose, exposure to a chemical can be tolerated without adverse effects. For noncarcinogens, a range of exposure exists that can be tolerated without adverse effects. Toxic effects are manifested only when physiologic protective mechanisms are overcome by exposures to a constituent above its threshold level. Maternal and developmental endpoints are considered systemic toxicity.

The potential for noncarcinogenic health effects resulting from exposure to chemical contaminants is assessed by comparing an exposure estimate (intake) to a reference dose (RfD). The RfDs is expressed in units of mg/kg/day and represents a daily intake of contaminant per kilogram of body weight that is not sufficient to cause the threshold effect of concern for the contaminant. An RfD is specific to the chemical, the route of exposure, and the duration over which the exposure occurs. Separate RfDs are presented for ingestion and inhalation pathways. EPA (1993a and 1994) presents

reference concentrations (RfCs) for the inhalation route. Inhalation noncancer toxicity values are usually expressed as inhalation concentrations (RfCs) in units of mg/m^3. Because noncancer risk characterization requires an estimate of dose in units of mg/kg-day, the inhalation RfC must be converted to an inhalation RfD using the inhalation RfC. This is done by assuming humans weigh 70 kg and inhale 20 m^3 of air per day (i.e., the inhalation RfC (mg/m^3) multiplied by 20 m^3/day and divided by 70 kg yields an inhalation RfD (mg/kg/day)). To derive an RfD, the EPA reviews all relevant human and animal studies for each compound and selects the study (studies) pertinent to the derivation of the specific RfD. Each study is evaluated to determine the no-observed-adverse-effect level (NOAEL) or, if data are inadequate for such a determination, the lowest-observed-adverse-effect level (LOAEL). The NOAEL corresponds to the dose, in mg/kg/day that can be administered over a lifetime without inducing observable adverse effects. The LOAEL corresponds to the lowest daily dose, in mg/kg/d, that can be administered over a lifetime that induces an observable adverse effect. The toxic effect characterized by the LOAEL is referred to as the "critical effect". To derive an RfD, the NOAEL (or LOAEL) is divided by uncertainty factors to ensure that the RfD will be protective of human health. Uncertainty factors are applied to account for (1) extrapolation of data from laboratory animals to humans (interspecies extrapolation), (2) variation in human sensitivity to the toxic effects of a compound (intraspecies differences), (3) derivation of a chronic RfD based on a subchronic rather than a chronic study, and/or (4) derivation of an RfD from the LOAEL rather than the NOAEL. In addition to these uncertainty factors, modifying factors between 0 and 10 may be applied to reflect additional qualitative considerations in evaluating the data. For most compounds, the modifying factor is 1.

Reference doses for noncarcinogenic CPCs are presented in Table A.4-3. The primary source of values for reference doses is IRIS, an on-line database that contains current health risk and regulatory information for many chemicals (EPA 1994). The RfDs and RfCs are also tabulated in HEAST (EPA 1994). Other EPA sources of provisional RfD values were also consulted when available. Surrogate chemicals were not used for derivation of an RfD unless the chemical similarity was very close and the derivation was highly defensible.

A.4.1.4 Dermal Reference Doses and Cancer Slope Factors

Dermal RfD values and cancer slope factors are derived from the corresponding oral values. In the derivation of a dermal RfD, the oral RfD is multiplied by the gastrointestinal (GI) absorption factor, expressed as a fraction. The resulting dermal RfD is an RfD based on absorbed dose, which is the

appropriate value with which to compare a dermal dose, because dermal doses are expressed as absorbed rather than exposure doses. In a similar manner, and for the same reasons, a dermal cancer slope factor is derived by dividing the oral cancer slope factor by the GI absorption efficiency. The oral slope factor is divided, rather than multiplied, by the GI absorption efficiency because cancer slope factors are expressed as reciprocal dose. Dermal RfD values and cancer slope factors for the chemicals of concern in Operable Unit 5 are presented in Table A.4-6.

The most important consideration regarding the uncertainty associated with a dermal RfD or cancer slope factor is the accuracy of the GI absorption efficiency factor. For this reason, the toxicity profiles presented in Section A.4.3 contain pharmacokinetics sections in which the oral absorption data are evaluated. Where appropriate, the low (most conservative) end of the range of available GI absorption data for humans is used in the derivation of the dermal RfD or cancer slope factor. When the human data are insufficient, animal data are used. Data from high-dose experiments are not used if more suitable data are available and it appears that saturation of the GI absorption process could have occurred.

When sufficient quantitative data were not located, a default GI absorption factor was used. As noted by EPA (1989a), the GI absorption of many metals from the GI tract is limited, and 0.05 is a reasonable default for metals and inorganic substances.

EPA (1989a) did not recommend a separate default value for organic chemicals. A compilation of data for 19 organic chemicals presented in the (DRAFT) Revised Risk Assessment Work Plan Addendum (DOE, 1992) provided GI absorption efficiencies ranging from 0.5 to 1.0. All but 3 of the 19 chemicals had GI absorption efficiencies of at least 0.9, indicating that organic chemicals are readily absorbed. The arithmetic average of the GI efficiencies for the 19 organic chemicals 0.91368, or equivalent to 0.9 when rounded to one significant figure, appears to be a reasonable default GI absorption efficiency factor for organic chemicals. The default of 0.9 for GI absorption is used for organic chemicals for which quantitative data were not sufficient. The GI efficiency factors used to derive the dermal RfD values and cancer slope factors are presented in Table A.4-6.

A.4.2 TOXICITY PROFILES

This subsection provides a brief introduction into information presented in the toxicological profiles prepared for individual CPCs, which are presented in Attachment V. Detailed evaluations are

presented for those contaminants that are most prevalent in Operable Unit 5 environmental media. Chemicals for which there is an issue requiring explanation (e.g., use of the EPA uptake/Biokinetic Model (UBK), rather than an oral or inhalation RfD, to evaluate the toxicity of lead) are also included. Data evaluated for each contaminant include pharmacokinetics, noncancer toxicity, and carcinogenicity. The pharmacokinetics evaluations focus primarily on GI and dermal absorption efficiencies because of the need to consider route- and medium-specific absorption efficiencies in estimating dermal RfD values and cancer slope factors from oral data. The chemicals are profiled in alphabetical order.

A.4.3 CRITERIA/STANDARDS

Table A.4-7 presents available regulatory standards or guidelines for CPCs detected in environmental media sampled at the FEMP. These values will be used in the risk characterization presented in Section A.5.0.

A.4.3.1 Maximum Contaminant Levels (MCLs)

MCLs are enforceable standards promulgated under the Safe Drinking Water Act (SDWA) and are designed for the protection of human health. MCLs are based on laboratory or epidemiological studies and apply to all public water systems. A public water system is defined as a system which provides water to the public for human consumption and which has at least 15 service connections or regularly serves an average of at least 25 individuals daily for a minimum of 60 days per year. MCLs are designed for prevention of human health effects associated with lifetime exposure (70-year lifetime) of an average adult (70 kg) consuming two liters of water per day, but also reflect the technical feasibility of removing the contaminant.

The federal SDWA standards undergo periodic review by the Environmental Protection Agency and are subject to change as new toxicological information becomes available. Recent proposed standards and criteria are included in Table A.4-7 for the chemicals of concern.

A.4.3.2 Maximum Contaminant Level Goals (MCLGs)

MCLGs are specified as zero for carcinogenic substances, based on the assumption of nonthreshold toxicity, and do not consider the technical or economic feasibility of achieving these goals. MCLGs are non enforceable guidelines based entirely on health effects. The MCLs have been set as close to the MCLGs as is considered technically and economically feasible.

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A.4.3.3 Ambient Water Quality Criteria (AWQC)

AWQC are not enforceable regulatory guidelines. They may be used for identifying human health risks and acute and chronic toxic effects in aquatic organisms. AWQCs consider acute and chronic effects in both freshwater and saltwater aquatic life, and adverse carcinogenic and noncarcinogenic health effects in humans from ingestion of both water (2 liters/day) and aquatic organisms (6.5 grams/day), from ingestion of water alone (2 liters/day), and from ingestion of aquatic organisms alone (6.5 grams/day). The AWQCs for protection of human health for carcinogenic substances are based on the EPA's specified incremental cancer risk range of one additional case of cancer in an exposed population of 10,000,000 to 100,000 persons (the 10^{-7} - 10^{-5} range).

A.4.3.4 Health Advisories (HAs)

HAs are guidelines developed by the EPA Office of Drinking Water for nonregulated contaminants in drinking water. These guidelines are designed to consider both acute and chronic toxic effects in children (assumed body weight of 10 kg) who consume 1 liter of water per day or for adults (assumed body weight of 70 kg) who consume 2 liters of water per day. HAs are generally available for acute (1-day), subchronic (10-day), and chronic (long-term) exposure scenarios. HA guidelines are designed to consider only threshold effects, and, as such, not used to set acceptable levels of known or probable human carcinogens.

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TABLE A.4-1

SUMMARY OF CANCER SLOPE FACTORS AVAILABLE FOR FEMP RADIONUCLIDE CONTAMINANTS

Radionuclide	SF_o[a] (Risk/pCi)	SF_i[a] (Risk/pCi)	SF_e[a,b] (Risk-g/yr-pCi)	ICRP Lung Class[c]	GI Absorption Factor[d]
Actinium-227	2.8E-10	8.0E-08	2.6E-11	Y	1.0E-03
Actinium-227 + 7D [e]	3.5E-10	8.8E-08	8.5E-07	Y	1.0E-03
Cesium-137	2.8E-11	1.9E-11	0.0E+00	D	1.0E+00
Cesium-137 + 1D	2.8E-11	1.9E-11	2.0E-06	D	1.0E+00
Lead-210	5.1E-10	1.3E-09	1.3E-10	D	2.0E-01
Lead-210 + 2D	6.6E-10	4.0E-09	1.6E-10	D	2.0E-01
Neptunium-237	2.2E-10	2.9E-08	7.8E-09	W	1.0E-03
Neptunium-237 + 1D	2.2E-10	2.9E-08	4.3E-07	W	1.0E-03
Plutonium-238	2.2E-10	3.9E-08	2.8E-11	Y	1.0E-03
Plutonium-239/240	2.3E-10	3.8E-08	2.7E-11	Y	1.0E-03
Polonium-210	1.5E-10	2.6E-09	2.9E-11	W	1.0E-01
Potassium-40	1.1E-11	7.6E-12	5.4E-07	D	1.0E+00
Protactinium-231	9.2E-11	3.6E-08	2.6E-08	Y	1.0E-03
Radium-224	3.8E-11	1.2E-09	2.3E-08	W	2.0E-01
Radium-226	1.2E-10	3.0E-09	1.2E-08	W	2.0E-01
Radium-226 +5D	1.2E-10	3.0E-09	6.0E-06	W	2.0E-01
Radium-226 + 8D [f]	7.8E-10	7.0E-09	6.0E-06	W	2.0E-01
Radium-228	1.0E-10	6.6E-10	0.0E+00	W	2.0E-01
Radium-228 + 1D	1.0E-10	6.9E-10	2.9E-06	W	2.0E-01
Radon-222	1.4E-12	7.3E-13	1.2E-09	*	1.0E+00
Radon-222 + 4D	1.7E-12	7.7E-12	5.9E-06	*	1.0E+00
Ruthenium-106	9.5E-12	4.4E-10	0.0E+00	Y	5.0E-02
Strontium-90	3.3E-11	5.6E-11	0.0E+00	D	3.0E-01
Strontium-90 + 1D	3.6E-11	6.2E-11	0.0E+00	D	3.0E-01
Technetium-99	1.3E-12	8.3E-12	6.0E-13	W	8.0E-01
Thorium-228	1.1E-11	7.7E-08	5.5E-10	Y	2.0E-04
Thorium-228 + 7D	5.5E-11	7.8E-08	5.6E-06	Y	2.0E-04
Thorium-230	1.3E-11	2.9E-08	5.4E-11	Y	2.0E-04
Thorium-232	1.2E-11	2.8E-08	2.6E-11	Y	2.0E-04

TABLE A.4-1
(Continued)

Radionuclide	SF_o[a] (Risk/pCi)	SF_i[a] (Risk/pCi)	SF_e[a,b] (Risk-g/yr-pCi)	ICRP Lung Class[c]	GI Absorption Factor[d]
Thorium-232 + 10D [f]	1.7E-10	1.1E-07	8.5E-06	Y	2.0E-01
Thorium-234	4.0E-12	3.2E-11	3.5E-09	Y	2.0E-04
Uranium-233	1.6E-11	2.7E-08	4.2E-11	Y	5.0E-02
Uranium-234	1.6E-11	2.6E-08	3.0E-11	Y	5.0E-02
Uranium-235	1.6E-11	2.5E-08	2.4E-07	Y	5.0E-02
Uranium-235 + 1D [g]	1.6E-11	2.5E-08	2.4E-07	Y	5.0E-02
Uranium-236	1.5E-11	2.5E-08	2.4E-11	Y	5.0E-02
Uranium-238	1.6E-11	2.4E-08	2.1E-11	Y	5.0E-02
Uranium-238 + 2D	2.8E-11	5.2E-08	3.6E-08	Y	5.0E-02

[a]SF_o = Oral cancer slope factor; SF_i = Inhalation cancer slope factor; SF_e = External radiation cancer slope factor. SF_o, SF_i and SF_e acquired from U.S. EPA, Health Effects Assessment Summary Tables, March 1993, Updated July 1993 (FY 1993).
[b]SF_e incorporates a soil depth and density of 0.1 m and 1430 kg/m^3, respectively.
[c]Lung clearance classification recommended by the International Commission on Radiological Protection (ICRP): Y=Year, W=Week, D=Day, *=Gas.
[d]Gastrointestinal (GI) absorption factors are the fractional amounts of each radionuclide absorbed across the GI tract into the bloodstream. Lung clearance classifications and GI absorption factors are provided for reference only. DO NOT use these factors to adjust (i.e.multiply or divide) inhalation or ingestion slope factors.
[e]"+D" Indicates that the slope factors (SFs) presented incorporate SFs that are available for the individual primary decay chain products U.S. EPA, Health Effects Assessment Summary Tables, March 1993, Updated July 1993 (FY 1993).
[f]Slope factors to be used to evaluate future exposure scenarios involving parent radionuclide in equilibrium with daughter products.
[g]Slope factors for U-235+1D will be used to evaluate exposures to U-235/236.

TABLE A.4-3

TOXICITY CRITERIA FOR CHEMICALS DETECTED IN THE FEMP ENVIRONMENTAL MEDIA SAMPLES OPERABLE UNIT 5

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Volatile Organic Compounds						
1,1,1,2-Tetrachloroethane	3.0E-02[c] [3000]	NA	Liver and kidney toxicity / NA	2.6E-02[c]	2.6E-02[c,d]	C (liver tumors in female mice)
1,1,1-Trichloroethane	NA	2.86E-01[e]	Liver toxicity	NA	NA	D
1,1,2,2-Tetrachloroethane	NA	NA	NA	2.0E-01[c]	2.0E-01[c,d]	C (increased liver tumors in mice)
1,1,2-Trichloroethane	4.0E-03[c] [1000]	NA	Effects on red blood cells and liver / NA	5.7E-02[c]	5.6E-02[c,d]	C (liver and adrenal tumors)
1,1-Dichloroethane	NA	1.0E-01[f] [1000]	NA / no effects observed	NA	NA	C (mammary gland tumors and liver tumors)
1,1-Dichloroethene	9.0E-03[c] [1000]	NA	Liver lesions / NA	6.0E-01[c]	1.8E-01[c,d]	C (glandular tumors in mice)
1,2,3-Trichloropropane	6.0E-03[c] [1000]	NA	Reduction in red cells / NA	NA	NA	B2
1,2-Dibromo-3-chloropropane	NA	5.7E-05[c,g] [1000]	NA / effects on the testicles	1.4E+00[f]	6.9E-07[f]	B2 (stomach, kidney, liver tumors in rats; nasal cavity tumors in rats, mice)
1,2-Dibromoethane	NA	5.7E-05[f,g] [1000]	NA / effects on sperm	8.5E+01[c]	7.7E-01[c,d]	B2 (nasal cavity tumors in rats)
1,2-Dichloroethane	NA	NA	NA	9.1E-02[c]	9.1E-02[c,d]	B2 (lung tumors in mice)
cis-1,2-Dichloroethene	1.0E-02[f] [3000]	NA	Decreased number of red blood cells / NA	NA	NA	D

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
total-1,2-Dichloroethene	9.0E-03 [1000]	NA	NA	NA	NA	D
trans-1,2-Dichloroethene	2.0E-02[c]	NA	Serum effects / NA	NA	NA	D
cis-1,3-Dichloropropene	NA	NA	NA	1.8E-01[f]	1.3E-01[f]	NA
trans-1,3-Dichloropropene	NA	NA	NA	1.8E-01[f]	1.3E-01[f]	B2 (tumors)
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	9.3E+00[f]	B2
1,4-Dioxane	NA	NA	NA	1.1E-02[c]	NA	B2 (nasal cavity, liver tumors in mice; gall bladder tumors in guinea pigs)
2-Butanone	6.0E-01[c] [3000]	2.86E-01[c,g] [1000]	Decreased fetal birth rate / decreased fetal birth weight	NA	NA	D
2-Chloro-1,3-butadiene	NA	2.0E-03[f,g] [300]	NA / hair loss, decreased weight gain	NA	NA	NA
2-Chloroethylvinyl ether	NA	NA	NA	NA	NA	NA
2-Hexanone	4.0E-02[h]	NA	NA	NA	NA	NA
2-Picoline	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	5.0E-02[f] [1000]	2.3E-02[f,g] [1000]	Liver, kidney effects / liver, kidney effects	NA	NA	NA
Acetone	1.0E-01[c] [1000]	NA	Increased liver and kidney weights / NA	NA	NA	D
Acetonitrile	6.0E-03[c] [3000]	1.4E-02[f,g] [3000]	Decreased red blood cell count, liver lesions / NA	NA	NA	NA
Acrolein	NA	5.7E-06[c,g] [1000]	NA / effects on nasal tissue	NA	NA	C (increased cortical tumors in female rats)

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Acrylonitrile	NA	5.7E-04[c,g] [1000]	NA / inflammation of nasal tissue	5.4E-01[c]	2.4E-01[c,d]	B1 (lung cancer in exposed workers; brain tumors in rats)
Benzene	NA	NA	NA / effects on the blood	2.9E-02[c]	2.9E-02[c,d]	A (nonlymphocytic leukemia; neoplasia in rats, mice)
Bromochloromethane	NA	NA	NA	NA	NA	D
Bromodichloromethane	2.0E-02[c] [1000]	NA	Liver effects / NA	6.2E-02[c]	NA	B2 (kidney, liver, large intestine tumors in rats, mice)
Bromoform	2.0E-02[c] [1000]	NA	Liver lesions / NA	7.9E-03[c]	3.8E-03[c,d]	B2
Bromomethane	1.4E-03[c] [1000]	1.4E-03[c,g] [100]	Effects on the forestomach tissue / nasal lesions	NA	NA	D
Carbon tetrachloride	7.0E-04[c] [1000]	NA	Liver lesions / NA	1.3E-01[c]	5.2E-02[c,d]	B2 (liver tumors)
Carbon disulfide	1.0E-01[c] [100]	2.86E-03[f,g] [1000]	Fetal toxicity, malformations / fetal toxicity	NA	NA	NA
Chlorobenzene	2.0E-02[c] [1000]	5.7E-03[f,g] [10000]	Changes in liver tissue / liver effects	NA	NA	D
Chloroethane	NA	2.86E+00[c,g] [300]	NA / delayed formation of the fetal bones	NA	NA	NA
Chloroform	1.0E-02[c] [1000]	NA	Fatty cyst formation in liver / NA	6.1E-03[c]	8.0E-02[c,d]	B2 (liver tumors in mice)
Chloromethane	NA	NA	NA	1.3E-02[f]	6.3E-03[f]	NA
Cumene	4.0E-02[c] [3000]	2.6E-03[f,g] [10000]	Increased average kidney weight / CNS	NA	NA	NA
Dibromochloromethane	2.0E-02[c] [1000]	NA	Liver lesions / NA	8.4E-02[c]	NA	C (liver tumors in mice)
Dibromomethane	NA	NA	NA	NA	NA	D

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
1,2-Dichloropropane	NA	1.1E-03[c,g] [300]	Effects on nasal mucous membrane / NA	NA	6.8E-02[f]	B2 (liver tumors in mice)
Dichlorodifluoromethane	2.0E-01[e] [100]	5.7E-02[f,g] [10000]	Reduced body weight / NA	NA	NA	D
Ethyl cyanide	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	9.0E-02[f] [100]	NA	NA	NA	NA	NA
Methyl methacrylate	8.0E-02[f] [100]	NA	Increased relative weight / NA	NA	NA	NA
Ethylbenzene	1.0E-01[e] [1000]	2.86E-01[c,g] [300]	Liver and kidney toxicity / developmental toxicity	NA	NA	D
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutyl alcohol	3.0E-01[e] [1000]	NA	Lessened activity, muscle incoordination / NA	NA	NA	NA
Methacrylonitrile	NA	2.0E-04[f,g] [3000]	NA / increased SGOT,SGPT levels	NA	NA	NA
Methylene chloride	6.0E-02[e] [100]	8.58E-01[f,g] [100]	Liver toxicity / liver toxicity	7.5E-03[e]	1.6E-03[e,d]	B2 (liver neoplasms, alveolar/ bronchiolar neoplasms in mice; salivary gland tumors)
Pentachloroethane	NA	NA	NA	NA	NA	NA
Pyridine	1.0E-03[e] [1000]	NA	Increased liver weight / NA	NA	NA	NA
Styrene	2.0E-01[e] [1000]	2.86E-01[c,g] [30]	Red blood cell, liver effects / CNS effects	3.0E-02[i]	NA	C
Tetrachloroethene	1.0E-02[e] [1000]	NA	Liver toxicity in mice / NA	5.2×10^{-2}	NA	NA
Toluene	2.0E-01[e] [1000]	1.1E-01[c,g] [300]	Changes in liver, kidney weights / neurological effects	NA	NA	D

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Total Xylenes	2.0E+00[c] [100]	NA	Increased activity / NA	NA	NA	D
Trichloroethene	6.0E-03[i]	NA	NA	1.1E-02[i]	6.0E-03[i]	NA
Trichlorofluoromethane	3.0E-01[c] [1000]	2E-01[f,g] [10000]	Survival, diseased tissue / kidney, lung	NA	NA	D
Vinyl acetate	1.0E+00[f] [100]	5.7E-02[c,g] [30]	Body, kidney altered weights / nasal lesions	NA	NA	NA
Vinyl chloride	NA	NA	NA	1.9E+00[f]	3.0E-01[f]	A
Semivolatile Organic Compounds						
1,2,4,5-Tetrachlorobenzene	3.0E-04[c] [1000]	NA	Kidney lesions / NA	NA	NA	NA
1,2,4-Trichlorobenzene	1.0E-02[c] [1000]	2.57E-03[f,g] [1000]	Increased adrenal weight / disturbance of liver metabolism	NA	NA	D
1,2-Dichlorobenzene	9.0E-02[c] [1000]	5.7E-02[f] [1000]	No effects observed / decreased weight gain	NA	NA	D
1,3,5-Trinitrobenzene	5.0E-05[c] [1000]	NA	Increased splenic weight / NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	D
1,3-Dinitrobenzene	1.0E-04[c] [3000]	NA	Increased splenic weight / NA	NA	NA	D
1,4-Dichlorobenzene	NA	2.3E-01[f,g] [100]	NA / liver	2.4E-02[f]	NA	B2
1,4-Naphthaquinone	NA	NA	NA	NA	NA	NA
1-Hexadecyne	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	3.0E-02[c] [1000]	NA	Increased liver weights / NA	NA	NA	NA
2,4,5-Trichlorophenol	1.0E-01[c] [1000]	NA	Liver, kidney disease / NA	NA	NA	NA

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
2,4,6-Trichlorophenol	NA	NA	NA	1.1E-02[c]	1.1E-02[c,d]	B2 (lymphomas, leukemias in male rats)
2,4-Dichlorophenol	3.0E-03[e] [100]	NA	Decreased delayed hypersensitivity response / NA	NA	NA	D
2,4-Dimethylphenol	2.0E-02[e] [3000]	NA	Sluggish; absolute exhaustion; muscle incoordination / NA	NA	NA	NA
2,4-Dinitrophenol	2.0E-03[e] [1000]	NA	Cataract formation / NA	NA	NA	NA
2,4-Dinitrotoluene	2.0E-03[e] [100]	NA	Neurotoxicity, effects on the biliary tract / NA	6.8E-01[c,j]	NA	B2[j] (mutagenicity; malignant kidney tumors in male mice)
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	1.0E-03[f] [3000]	NA	CNS, methemoglobinemia, effects on the bile duct / NA	6.8E-01[c,j]	NA	B2[j] (mutagenicity; malignant kidney tumors in male mice)
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	8.0E-02[e] [3000]	NA	Labored breathing, liver enlargement / NA	NA	NA	NA
2-Chlorophenol	5.0E-03[e] [1000]	NA	Reproductive effects / NA	NA	NA	D
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA
2-Methylphenol	5.0E-02[e] [1000]	NA	Respiratory distress / NA	NA	NA	C (skin tumors in mice)
2-Naphthylamine	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	6.0E-05[f]	NA / effects on the blood	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
3,3'-Dichlorobenzidine	NA	NA	NA	4.5E-01[e]	NA	B2 (rat, mice, dog tumors; genotoxicity, structural relationship to known human bladder carcinogen benzidine)
3,3'-Dimethylbenzidine	NA	NA	NA	9.2E+00[f]	NA	B2 (mammary tumors in rats)
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Methylphenol	5.0E-02[e]	NA	Decreased body weights / NA	NA	NA	C (skin tumors in mice; positive results for genetic toxicity studies)
3-Nitrophenol	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	5.8E-02[i]	NA	NA	NA	NA	D
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA
4-Chloroaniline	4.0E-03[e] [3000]	NA	Lesions of splenic capsule / NA	NA	NA	NA
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA
4-Methylphenol	5.0E-02[f]	NA	Decreased weight gain, neurotoxicity / NA	NA	NA	C (skin tumors in mice)
4-Nitroaniline	3.0E-03[i]	NA	NA	NA	NA	NA
4-Nitrophenol	6.2E-02[i]	NA	NA	NA	NA	D
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA
Acenaphthene	6.0E-02 c [3000]	NA	Liver toxicity / NA	NA	NA	NA

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Acenaphthylene	NA	NA	NA	NA	NA	D
Acetophenone	1.0E-01[c] [3000]	5.7 x 10^{-6}	General toxicity / NA	NA	NA	D
Aniline	NA	2.86E-04[c,g] [3000]	NA / lack of spleen toxicity	5.6E-03[d]	NA	B2 (spleen and body cavity tumor in rats)
Anthracene	3.0E-01[c] [3000]	NA	No effects observed / NA	NA	NA	D
Aramite	5.0E-02[f] [100]	NA	Increased weight / NA	2.5E-02[e]	2.5E-01[f]	B2 (liver tumors)
Benzo(a)anthracene	NA	NA	NA	1.1E+00[k]	8.9E-01[k]	B2 (mice tumors)
Benzo(a)pyrene	NA	NA	NA	7.3E+00[e]	6.1E+00[k]	B2 (forestomach tumors in rats, mice; respiratory tract tumors in hamsters)
Benzo[b]fluoranthene	NA	NA	NA	9.0E-01[k]	7.5E-01[k]	B2 (lung tumors in mice)
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	D
Benzo[k]fluoranthene	NA	NA	NA	3.8E-01[k]	3.2E-01[k]	B2 (lung tumors in mice)
Benzoic acid	4.0E+00[c] [1]	NA	No adverse effects observed / NA	NA	NA	D
Benzyl alcohol	3.0E-01[f] [1000]	NA	Epithelial hyperplasia / NA	NA	NA	NA
Butyl benzyl phthalate	2.0E-01[c] [1000]	NA	Increased liver:body weight, liver:brain weight / NA	NA	NA	C (leukemia in female rats)
Carbazole	NA	NA	NA	2.0E-02[f]	NA	B2 (liver tumors in mice)

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Chlorobenzilate	2.0E-02 [c] [300]	NA	Increased irritability / NA	NA	NA	NA
Chrysene	NA	NA	NA	3.2E-02[k]	2.7E-02[k]	B2 (tumors and malignant lymphoma in mice; chromosomal abnormalities in hamsters)
Di-n-butylphthalate	1.0E-01 [c] [1000]	NA	Increased mortality / NA	NA	NA	D
Di-n-octylphthalate	2.0E-02 [f] [1000]	NA	Increased liver, kidney weights / NA	NA	NA	NA
Diallate	NA	NA	NA	6.1E-02[f]	NA	B2 (liver tumors in mice)
Dibenzo(a,h)anthracene	NA	NA	NA	8.1E+00[k]	6.8E+00[k]	B2 (tumors in mice; DNA damage, gene mutations in bacteria)
Dibenzofuran	4.0×10^{-3}	NA	NA	NA	NA	D
Diethyl phthalate	8.0E-01[c] [1000]	NA	Decreased growth weights / NA	NA	NA	D
Dimethoate	2.0E-04[c] [300]	NA	Brain ChE inhibition / NA	NA	NA	NA
Dimethyl phthalate	1.0E+01[f] [100]	NA	Kidney effects / NA	NA	NA	D
Diphenylamine	2.5E-02[c] [100]	NA	Decreased body weight, increased liver, kidney weights / NA	NA	NA	D
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA
Fluoranthene	4.0E-02[c] [3000]	NA	Kidney disease, increased liver wts., blood changes / NA	NA	NA	D

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Fluorene	4.0E-02[c] [3000]	NA	Decreased red blood cell, packed cell volume and hemoglobin / NA	NA	NA	D
Hexachlorobenzene	8.0E-04[c] [100]	NA	Liver effects / NA	1.6E+00[c]	1.61E+00[c,d]	B2 (liver, thyroid, kidney tumors in rodents)
Hexachlorobutadiene	NA	NA	NA	7.8E-02[c]	7.7E-02[c,d]	C (kidney tumors in male and female rats)
Hexachlorocyclpentadiene	7.0E-03[c] [1000]	2.0E-05[f,g] [1000]	Stomach lesions / effects on nasal tissue	NA	NA	D
Hexachloroethane	1.0E-03[c] [1000]	NA	Degeneration of the kidney tubules / NA	1.4E-02[c]	1.4E-02[c,d]	C (tumors in one mouse strain after oral exposure)
Hexachlorophene	3.0E-04[c] [3000]	NA	Swollen salivary glands, effects on the brain and optic nerve / NA	NA	NA	NA
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	2.0E+00[k]	1.7E+00[k]	B2 (tumors in mice following lung implants)
Isodrin	NA	NA	NA	NA	NA	NA
Isophorone	2.0E-01[c] [1000]	NA	No effects observed / NA	9.5E-04[c]	NA	C (increase of preputial gland tumors in male rats)
Isosafrole	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	NA	NA	NA	7.01E+00[c]	NA	B2

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
N-Nitroso-di-n-butylamine	NA	NA	NA	5.4E+00[c]	5.6E+00[c,d]	B2 (several tumor types in rats, mice, hamsters)
N-Nitrosodiethylamine	NA	NA	NA	1.5E+02[c]	1.5E+02[c]	B2 (tumors at multiple sites in both rodent and nonrodent species)
N-Nitrosodimethylamine	NA	NA	NA	5.1E+01[c]	4.91E+01[c,d]	B2 (induction of tumors at numerous sites in rodent and nonrodent mammals)
N-Nitrosodiphenylamine	NA	NA	NA	4.9E-03[c]	NA	B2 (bladder tumors in rats; reticulum cell tumors in mice)
N-Nitrosomethylethylamine	NA	NA	NA	2.2E+01[c]	NA	B2 (liver tumors in rats)
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	NA	NA	NA	2.1E+00[c]	2.1E+00[c,d]	B2
Naphthalene	4.0E-02[l]	NA	Decreased weight / NA	NA	NA	D
Nitrobenzene	5.0E-04[c] [10000]	5.7E-04[f,g] [10000]	Hematologic, adrenal, kidney, liver lesions / blood, liver, kidney	NA	NA	D
o,o,o-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	8.0E-04[c] [10000]	NA	Liver, kidney toxicity / NA	NA	NA	D
Pentachloronitrobenzene	3.0E-03[c] [300]	NA	Liver toxicity / NA	2.6E-01[f]	NA	C
Pentachlorophenol	3.0E-02[c] [100]	NA	Liver and kidney disease / NA	1.2E-01[c]	NA	B2 (multiple tumor types)
Phenacetin	NA	NA	NA	NA	NA	NA

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Phenanthrene	NA	NA	NA	NA	NA	D
Phenol	6.0E-01 [c] [100]	NA	Reduced fetal body weight / NA	NA	NA	D
Phorate	2.0E-04 [f] [200]	NA	Cholinesterase inhibition / NA	NA	NA	NA
Pronamide	7.5E-02 [c] [100]	NA	No effects observed / NA	NA	NA	NA
Pyrene	3.0E-02 [c] [3000]	NA	Kidney effects / NA	NA	NA	D
Safrole	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA
Tributyl phosphate	5.0E-03[h]	NA	NA	NA	NA	NA
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
bis(2-chloroethoxy)methane	NA	NA	NA	NA	NA	D
bis(2-chloroethyl)ether	NA	NA	NA	NA	1.1E+00[f]	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	7.0E-02[f]	3.5E-02[f]	C (liver and lung tumors in mice)
bis(2-ethylhexyl)phthalate	2.0E-02[c] [1000]	NA	Increased liver weight / NA	1.4E-02[c]	NA	B2 (liver tumor responses in rats and mice)
o-Toluidine	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	1.9E-01[f] [100]	NA	Whole body effects / NA	NA	NA	NA
Azinphosmethyl	NA	NA	NA	NA	NA	NA
Pesticides / PCBs						
4-4'-DDD	NA	NA	NA	2.4E-01[c]	NA	B2 (lung, liver, thyroid tumors in rats, mice)

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TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
4-4'-DDE	NA	NA	NA	3.4E-01[c]	NA	B2 (liver tumors; tumors in mice and hamsters)
4-4'-DDT	5.0E-04[c] [100]	NA	Liver lesions / NA	3.4E-01[c]	NA	B2 (liver tumors in mice and rats)
Aldrin	3.0E-05[c] [1000]	NA	Liver toxicity / NA	1.7E+01[c]	1.7E+01[c,d]	B2 (increases in tumor responses in mice)
Arochlor 1016	7×10^{-5}	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Arochlor 1221	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Arochlor 1232	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Arochlor 1242	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Arochlor 1248	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Arochlor 1254	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Arochlor 1260	NA	NA	NA	7.7E+00[m]	NA	B2[m] (liver tumors in rats; suggestive evidence of liver cancer in humans)
Chlordane	6.0E-05[e] [1000]	NA	Increase in liver size in females / NA	1.3E+00[e]	1.3E+00[e,d]	B2 (benign and malignant liver tumors in mice)
Demeton	4.0E-05[e] [1000]	NA	ChE inhibition, optic nerve degeneration / NA	NA	NA	NA
Diazinon	9.0E-04[f] [100]	NA	Decreased cholinesterase activity / NA	NA	NA	NA
Dieldrin	5.0E-05[e] [100]	NA	Liver lesions / NA	1.6E+01[e]	1.6E+01[e]	B2 (liver tumors in mice)
Disulfoton	4.0E-05[e] [1000]	NA	ChE inhibition, optic nerve degeneration / NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA
Endrin	3.0E-04[e] [100]	NA	Liver lesions / NA	NA	NA	D
Endrin aldehyde	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA
Ethion	5.0E-04[e] [100]	NA	Cholinesterase inhibition / NA	NA	NA	NA
Heptachlor	5.0E-04[e] [300]	NA	Liver weight increase in males / NA	4.5E+00[e]	4.55E+00[e,d]	B2 (benign and malignant liver tumors in mice)
Heptachlor epoxide	1.3E-05[e] [1000]	NA	Increased liver:body weights / NA	9.1E+00[e]	9.1E+00[e,d]	B2 (liver tumors in mice)

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Malathion	2.0E-02[c] [10]	NA	RBC ChE depression / NA	NA	NA	D
Methoxychlor	5.0E-03[c] [1000]	NA	Excessive loss of litters / NA	NA	NA	D
Ethyl parathion	NA	NA	NA	NA	NA	C
Methyl parathion	2.5E-04[c] [1000]	NA	Effects on the blood; ChE inhibition / NA	NA	NA	D
Toxaphene	NA	NA	NA	1.1E+00[c]	1.1E+00[c,d]	B2 (liver tumors in mice)
alpha-BHC	NA	NA	NA	6.3E+00[c]	6.3E+00[c,d]	B2 (liver tumors in mice, rats)
alpha-chlordane	6.0E-05[c,a]	NA	NA	1.3E+00[c,a]	1.3E+00[c,d,a]	NA
beta-BHC	NA	NA	NA	1.8E+00[c]	1.9E+00[c,d]	C (benign liver tumors)
delta-BHC	NA	NA	NA	NA	NA	D
gamma-BHC (lindane)	3.0E-04[c] [1000]	NA	Liver and kidney toxicity / NA	NA	NA	NA
gamma-chlordane	NA	NA	NA	NA	NA	NA
Dioxins / Furans						
2,3,7,8-Tetrachlorodibenzo-p-dioxin	NA	NA	Respiratory system, liver / NA	1.5E+05[f]	1.5E+05[f]	B2 (respiratory system, liver tumors)
Herbicides						
2,4,5-T	1.0E-02[c] [300]	NA	Increased urinary coproporphyrins / NA	NA	NA	D
2,4,5-TP (Silvex)	8.0E-03[c] [100]	NA	Liver tissue changes / NA	NA	NA	D
2,4-D	1.0E-02[c] [100]	NA	Blood, liver, kidney toxicity / NA	NA	NA	D
Dinoseb	1.0E-03[c] [1000]	NA	Decreased fetal weight / NA	NA	NA	D

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Inorganics						
Aluminum	NA	NA	NA	NA	NA	NA
Antimony	4.0E-04[c] [1000]	NA	Longevity, blood glucose, cholesterol / NA	NA	NA	D
Arsenic	3.0E-04[c] [3]	NA	Changes in the skin / NA	1.75E+00	1.5E+01[c,d]	A (lung cancer, skin cancer)
Barium	7.0E-02[c] [3]	1.4E-04[f,g] [1000]	Increased blood pressure / fetotoxicity	NA	NA	D
Beryllium	5.0E-03[c] [100]	NA	No adverse effects observed / NA	4.3E+00[c]	8.4E+00[c,d]	B2 (lung cancer in rats, monkeys; tumors of the bone in rabbits)
Boron	9.0E-02[c] [100]	5.7E-03[f,g] [100]	Testicular atrophy / respiratory tract irritation	NA	NA	D
Cadmium	5.0E-04(water)[c] [10] 1.0E-03(food)[c] [10]	NA	Significant increase of protein in the urine / NA	NA	6.3E+00[c,d]	B1 (respiratory system tumors in humans; inhalation/occupational)
Calcium	NA	NA	NA	NA	NA	NA
Chromium,hexavalent	5.0E-03[c] [500]	NA	No adverse effects observed / NA	NA	4.2E+01[c,d]	A (lung tumors)
Chromium,trivalent	1.0E+00[c] [100]	NA	No effects observed / NA	NA	NA	NA
Cobalt	6.0E-02[i]	3.0E-07[i]	NA	NA	NA	NA
Copper	3.71E-02[e]	NA	NA	NA	NA	D
Cyanide	2.0E-02[c] [100]	NA	Weight loss, thyroid effects / NA	NA	NA	D
Iron	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	B2 (kidney tumors in mice, rats)
Magnesium	9.7E+00[e]	NA	NA	NA	NA	NA

TABLE A.4-3 (Continued)

Chemical	Reference Dose: Oral Route of Exposure (mg/kg/day) [UF][a]	Reference Dose: Inhalation Route of Exposure (mg/kg/day) [UF][a]	Target Organ for Noncarcinogenic Effects (Oral / Inhalation)	Cancer Slope Factor: Oral Route of Exposure $(mg/kg/day)^{-1}$	Cancer Slope Factor: Inhalation Route of Exposure $(mg/kg/day)^{-1}$	U.S. EPA Weight of Evidence[b]
Manganese	5.0E-03(water)[c] [1] 1.4E-01(food)[c] [1]	1.4E-05[c] [1000]	CNS effects / CNS effects	NA	NA	D
Mercury	3.0E-04[f] [1000]	8.6E-05[f,g] [30]	Kidney effects / neurotoxicity	NA	NA	D
Molybdenum	5.0E-03[e] [30]	NA	Increased uric acid levels / NA	NA	NA	D
Nickel	2.0E-02[e,p] [300]	NA	Decreased organ and body weights / NA	NA	8.4E-01[f]	D
Osmium	NA	NA	NA	NA	NA	NA
Selenium	5.0E-03[e] [3]	NA	Clinical selenosis / NA	NA	NA	D
Silver	5.0E-03 [e] [3]	NA	Benign permanent bluish discoloration of the skin / NA	NA	NA	D
Thallium	7.0E-05[f,q] [3000]	NA	Liver, blood, hair effects / NA	NA	NA	NA
Tin	6.0E-01[f] [100]	NA	Liver, kidney lesions / NA	NA	NA	NA
Vanadium	7.0E-03[f] [100]	NA	NA	NA	NA	D
Zinc	3.0E-01[e] [3]	NA	Decrease in erythrocyte superoxide dismutase / NA	NA	NA	D

[a][UF] Uncertainty Factor
[b]U.S. EPA Carcinogen Classification:
- Group A: Human Carcinogen (sufficient evidence of carcinogenicity in humans).
- Group B: Probable Human Carcinogen (B1-limited evidence of carcinogenicity in humans; B2-sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans).
- Group C: Possible Human Carcinogen (limited evidence of carcingenicity in animals and inadequate or lack of human data).
- Group D: Not Classifiable as to Human Carcinogenicity (inadequate or no evidence).
- Group E: Evidence of Noncarcinogenicity for Humans (no evidence of carcinogenicity in adequate studies).

TABLE A.4-3 (Continued)

[c]Dose-response parameter obtained from the U.S. EPA Integrated Risk Information System (IRIS). March 1994.
[d]Dose-response parameter calculated from a unit risk value.
[e]U.S. EPA Environmental Criteria Assessment Office, Cincinnati, September 1993.
[f]Dose-response parameter obtained from the U.S. EPA Health Effects Assessment Summary Tables (HEAST), Annual FY 1992 NTIS No. PB92-921199. March 1993, Updated July 1993.
[g]Dose-response parameter calculated from a reference concentration.
[h]U.S. EPA Environmental Criteria Assessment Office, Cincinnati, July 1993.
[i]U.S. EPA, Region III, Risk-Based Concentration Table, Fourth Quarter 1993.
[j]Dose-response parameter based on 2,4-/2,6-dinitrotoluene mixture.
[k]Cancer slope factor (CSF) derived by application of Clement's relative potency factor (RPF) to benzo(a)pyrene CSF(7.3/mg/kg-day). See Table A.4-5 for Clement's RPFs.
[l]U.S. EPA Environmental Criteria Assessment Office, Risk Assessment Issue Paper for: "Provisional RfD for Cobalt (7440-48-4)," dated December 1992.
[m]Cancer slope factor for PCBs in general.
[n]Toxicity criterion for chlordane.
[o]Reference dose derived from action level of 1.3 mg/L, which represents the Maximum Contaminant Level Goal (MCLG).
[p]Oral reference dose is for nickel as soluble salts.
[q]Oral reference dose is for thallic oxide.
RBC Red blood cells
CNS Central nervous system
ChE Cholinesterase
NA Information not available.
[r]U.S. EPA Environmental Criteria Assessment Office, Cincinnati, Memorandum 10/5/92.

TABLE A.4-7

DRINKING WATER STANDARDS, HEALTH ADVISORIES, AND AMBIENT WATER QUALITY CRITERIA FOR CHEMICALS DETECTED AT THE FEMP OPERABLE UNIT 5

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (μg/L)
	Status [b]	MCL [c] (μg/L)	MCLG [d] (μg/L)	Status [b]	Health Advisory (μg/L)	Ingestion of Water and Fish (μg/L)	Consumption of Fish (μg/L)	
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	L	NA	NA	F	70	NA	NA	NA
1,1,1-Trichloroethane	F	200	200	F	200	18,400	1,030,000	200
1,1,2,2-Tetrachloroethane	L	NA	NA	D	NA	0.17	10.7	NA
1,1,2-Trichloroethane	F	5	3	F	3	0.6	41.8	NA
1,1-Dichloroethane	L	NA	NA	D	NA	NA	NA	NA
1,1-Dichloroethene	F	7	7	F	7	0.033 [g]	1.85 [g]	7
1,2,3-Trichloropropane	L	NA	NA	F	40	NA	NA	NA
1,2-Dibromo-3-chloropropane	F	0.2	0	F	50 (ten day 10 kg child)	NA	NA	NA
1,2-Dibromoethane	L	NA	NA		NA	NA	NA	NA
1,2-Dichloroethane	F	5	0	F	700 (one day 10 kg child)	0.94	243	5
cis-1,2-Dichloroethene	F	70	70	F	70	0.033 [g]	1.85 [g]	NA
1,2-Dichloropropane	F	5	0	F	90 (ten day 10 kg child)	NA	NA	NA
1,4-Dioxane		NA	NA	F	400 (ten day 10 kg child)	NA	NA	NA
2-Butanone		NA	NA		NA	NA	NA	NA
2-Chloro-1,3-butadiene		NA	NA		NA	NA	NA	NA
2-Chloroethylvinyl ether		NA	NA		NA	NA	NA	NA
2-Hexanone		NA	NA		NA	NA	NA	NA
2-Picoline		NA	NA		NA	NA	NA	NA
3-Chloropropene		NA	NA		NA	NA	NA	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
4-Methyl-2-pentanone		NA	NA		NA	NA	NA	NA
Acetone		NA	NA		NA	NA	NA	NA
Acetonitrile		NA	NA		NA	NA	NA	NA
Acrolein		NA	NA		NA	320	780	NA
Acrylonitrile	T	NA	0	D	NA	0.058	0.65	NA
Benzene	F	5	0	F	200 (one-day 10KG child)	0.66	40	5
Bromochloromethane		NA	NA	F	90	NA	NA	NA
Bromodichloromethane	T	100	0	D	700 (DWEL 70 kg adult)	NA	NA	100
Bromoform	T	100	0	D	700 (DWEL 70 kg adult)	NA	NA	100
Bromomethane	T	NA	NA	F	10	NA	NA	NA
Carbon tetrachloride	F	5	0	F	30 (DWEL 70 kg adult)	0.4	6.94	5
Carbon disulfide		NA	NA		NA	NA	NA	NA
Chlorobenzene	F	100	100	F	100	488 [h]	NA	NA
Chloroethane	L	NA	NA	D	NA	NA	NA	NA
Chloroform	T	100	0	D	100 (longer term 10 kg child)	0.19	15.7	100
Chloromethane	L	NA	NA	F	3	NA	NA	NA
Cumene		NA	NA	D	NA	NA	NA	NA
Dibromochloromethane		NA	NA		NA	NA	NA	100
Dibromomethane	L	NA	NA		NA	NA	NA	NA
Dichlorodifluoromethane	L	NA	NA	F	1000	NA	NA	NA
Ethyl cyanide		NA	NA		NA	NA	NA	NA
Ethyl methacrylate		NA	NA		NA	NA	NA	NA
Ethylbenzene	F	700	700	F	700	1400	3280	NA
Iodomethane		NA	NA		NA	NA	NA	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (μg/L)
	Status [b]	MCL [c] (μg/L)	MCLG [d] (μg/L)	Status [b]	Health Advisory (μg/L)	Ingestion of Water and Fish (μg/L)	Consumption of Fish (μg/L)	
Isobutyl alcohol		NA	NA		NA	NA	NA	NA
Methacrylonitrile		NA	NA		NA	NA	NA	NA
Methyl methacrylate		NA	NA		NA	NA	NA	NA
Methylene chloride	F	5	0	F	2000 (DWEL 70 kg adult)	NA	NA	NA
Pentachloroethane		NA	NA	D	NA	NA	NA	NA
Pyridine		NA	NA		NA	NA	NA	NA
Styrene	F	100	100	F	100	NA	NA	NA
Tetrachloroethene	F	5	0	F	500 (DWEL 70 kg adult)	0.8	8.85	NA
Toluene	F	1000	1000	F	1000	14,300	424,000	NA
Total Xylenes	F	10000	10000	F	10000	NA	NA	NA
Trichloroethene	F	5	0	F	300 (DWEL 70 kg adult)	2.7	80.7	5
Trichlorofluoromethane	L	NA	NA	F	2000	NA	NA	NA
Vinyl acetate		NA	NA		NA	NA	NA	NA
Vinyl chloride	F	2	0	F	10 (longer term 10 kg child)	2	525	2
cis-1,3-Dichloropropene	T	NA [i]	0 [i]	F	10 [DWEL] [i]	87 [j]	14,100 [j]	NA
trans-1,2-Dichloroethene	F	100	100	F	100	0.033 [g]	1.85 [g]	NA
trans-1,3-Dichloropropene	T	NA	0	F	10 [DWEL]	87 [j]	14,100 [j]	NA
trans-1,4-Dichloro-2-butene		NA	NA		NA	NA	NA	NA
Semivolatile Organic Compounds								
1,2,4,5-Tetrachlorobenzene		NA	NA		NA	38	48	NA
1,2,4-Trichlorobenzene	F	70	70	F	70	NA	NA	NA
1,2-Dichlorobenzene	F	600	600	F	600	400 [k]	2,600 [k]	NA
1,3,5-Trinitrobenzene		NA	NA		NA	NA	NA	NA
1,3-Dichlorobenzene	F	600	600	F	600	400 [k]	2,600 [k]	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
1,3-Dinitrobenzene		NA	NA	F	1	NA	NA	NA
1,4-Dichlorobenzene	F	75	75	F	75	400 [k]	2,600 [k]	75
1,4-Naphthaquinone		NA	NA		NA	NA	NA	NA
1-Hexadecyne		NA	NA		NA	NA	NA	NA
1-Naphthylamine		NA	NA		NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol		NA	NA		NA	NA	NA	NA
2,3,7,8-TCDD	F	0.0003	0	F	0.00001 (longer term 10 kg child)	1.3E-8	1.4E-8	NA
2,4,5-Trichlorophenol		NA	NA		NA	1	NA	NA
2,4,6-Trichlorophenol	L	NA	NA	D	NA	1.2	3.6	NA
2,4-Dichlorophenol		NA	NA	D	20	NA	0.3	NA
2,4-Dimethylphenol		NA	NA		NA	NA	NA	NA
2,4-Dinitrophenol		NA	NA		NA	70 [l]	14300 [l]	NA
2,4-Dinitrotoluene	L	NA	NA	F	100 (DWEL 70 kg adult)	0.11	9.1	NA
2,6-Dichlorophenol		NA	NA		NA	NA	NA	NA
2,6-Dinitrotoluene	L	NA	NA	F	40 (DWEL 70 kg adult)	NA	NA	NA
2-Acetylaminofluorene		NA	NA		NA	NA	NA	NA
2-Chloronaphthalene		NA	NA		NA	NA	NA	NA
2-Chlorophenol		NA	NA	D	40	NA	NA	NA
2-Methylnaphthalene		NA	NA		NA	NA	NA	NA
2-Methylphenol		NA	NA		NA	NA	NA	NA
2-Naphthylamine		NA	NA		NA	NA	NA	NA
2-Nitroaniline		NA	NA		NA	NA	NA	NA
2-Nitrophenol		NA	NA		NA	NA	NA	NA
3,3'-Dichlorobenzidine		NA	NA		NA	0.01	0.02	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
3,3'-Dimethylbenzidine		NA	NA		NA	NA	NA	NA
3-Methylcholanthrene		NA	NA		NA	NA	NA	NA
3-Methylphenol		NA	NA		NA	NA	NA	NA
3-Nitrophenol		NA	NA		NA	NA	NA	NA
4,6-Dinitro-2-methylphenol		NA	NA		NA	NA	NA	NA
4-Aminobiphenyl		NA	NA		NA	NA	NA	NA
4-Bromophenyl phenyl ether		NA	NA		NA	NA	NA	NA
4-Chloro-3-methylphenol		NA	NA		NA	NA	NA	NA
4-Chloroaniline		NA	NA		NA	NA	NA	NA
4-Chlorophenyl phenyl ether		NA	NA		NA	NA	NA	NA
4-Methylphenol		NA	NA		NA	NA	NA	NA
4-Nitroaniline		NA	NA		NA	NA	NA	NA
4-Nitrophenol		NA	NA	F	60	NA	NA	NA
4-Nitroquinoline-1-oxide		NA	NA		NA	NA	NA	NA
5-Nitro-o-toluidine		NA	NA		NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene		NA	NA		NA	NA	NA	NA
Acenaphthene		NA	NA		NA	NA	NA	NA
Acenaphthylene		NA	NA		NA	NA	NA	NA
Acetophenone		NA	NA		NA	NA	NA	NA
Aniline		NA	NA		NA	NA	NA	NA
Anthracene		NA	NA		NA	NA	NA	NA
Aramite		NA	NA		NA	NA	NA	NA
Benzo(a)anthracene	P	0.1	0		NA	0.0028 [m]	0.0311 [m]	NA
Benzo(a)pyrene	F	0.2	0		NA	0.0028 [m]	0.0311 [m]	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
Benzo(b)fluoranthene	P	0.2	0		NA	0.0028 [m]	0.0311 [m]	NA
Benzo(g,h,i)perylene		NA	NA		NA	NA	NA	NA
Benzo(k)fluoranthene	P	0.2	0		NA	0.0028 [m]	0.0311 [m]	NA
Benzoic Acid		NA	NA		NA	NA	NA	NA
Benzyl alcohol		NA	NA		NA	NA	NA	NA
Butyl benzyl phthalate	P	100	0		6000 (DWEL 70 kg adult)	NA	NA	NA
Carbazole		NA	NA		NA	0.0028 [m]	0.0311 [m]	NA
Chlorobenzilate		NA	NA		NA	NA	NA	NA
Chrysene	P	0.2	0		NA	0.0028 [m]	0.0311 [m]	NA
Di-n-butylphthalate		NA	NA		4000 (DWEL 70 kg adult)	35,000	154,000	NA
Di-n-octylphthalate		NA	NA		NA	NA	NA	NA
Diallate		NA	NA		NA	NA	NA	NA
Dibenzo(a,h)anthracene	P	0.3	0		NA	0.0028 [m]	0.0311 [m]	NA
Dibenzofuran		NA	NA		NA	NA	NA	NA
Diethyl phthalate		NA	NA	D	5000	350,000	1,800,000	NA
Dimethoate		NA	NA		NA	NA	NA	NA
Dimethyl phthalate		NA	NA		NA	313,000	2,900,000	NA
Diphenylamine		NA	NA	F	200	NA	NA	NA
Ethyl methanesulfonate		NA	NA		NA	NA	NA	NA
Famphur		NA	NA		NA	NA	NA	NA
Fluoranthene		NA	NA		NA	42	54	NA
Fluorene		NA	NA		NA	NA	NA	NA
Hexachlorobenzene	F	1	0	F	30 (DWEL 70 kg adult)	0.00072	0.00074	NA
Hexachlorobutadiene	T	NA	1	F	1	0.45	50	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
Hexachlorocyclpentadiene	F	50	50		200 (DWEL 70 kg adult)	260	NA	NA
Hexachloroethane	L	NA	NA	F	1	1.9	8.74	NA
Hexachlorophene		NA	NA		NA	NA	NA	NA
Hexachloropropene		NA	NA		NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	P	0.4	0	D	NA	NA	NA	NA
Isodrin		NA	NA		NA	0.0028 [m]	0.0311 [m]	NA
Isophorone	L	NA	NA	F	100	5200	520,000	NA
Isosafrole		NA	NA		NA	NA	NA	NA
Kepone		NA	NA		NA	NA	NA	NA
Methapyrilene		NA	NA		NA	NA	NA	NA
Methyl methanesulfonate		NA	NA		NA	NA	NA	NA
N-Nitroso-di-n-propylamine		NA	NA		NA	0.0008 [n]	1.24 [n]	NA
N-Nitroso-di-n-butylamine		NA	NA		NA	0.0008 [n]	1.24 [n]	NA
N-Nitrosodiethylamine		NA	NA		NA	0.0008 [n]	1.24 [n]	NA
N-Nitrosodimethylamine		NA	NA		NA	0.0014	16	NA
N-Nitrosodiphenylamine		NA	NA		NA	4.9	16.1	NA
N-Nitrosomethylethylamine		NA	NA		NA	0.0008 [n]	1.24 [n]	NA
N-Nitrosomorpholine		NA	NA		NA	NA	NA	NA
N-Nitrosopiperidine		NA	NA		NA	NA	NA	NA
N-Nitrosopyrrolidine		NA	NA		NA	0.016	91.9	NA
Naphthalene		NA	NA	F	20	NA	NA	NA
Nitrobenzene		NA	NA		NA	30	NA	NA
o,o,o-Triethylphosphorothioate		NA	NA		NA	NA	NA	NA
Pentachlorobenzene		NA	NA		NA	74	85	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
Pentachloronitrobenzene		NA	NA		NA	NA	NA	NA
Pentachlorophenol	F	1	0	F	300 (10 day 10 kg child)	1010	NA	NA
Phenacetin		NA	NA		NA	NA	NA	NA
Phenanthrene		NA	NA		NA	NA	NA	NA
Phenol		NA	NA	D	4000	30	NA	NA
Phorate		NA	NA		NA	NA	NA	NA
Pronamide		NA	NA	F	50	NA	NA	NA
Pyrene		NA	NA		NA	NA	NA	NA
Safrole		NA	NA		NA	NA	NA	NA
Thionazin		NA	NA		NA	NA	NA	NA
Tributyl phosphate		NA	NA		NA	NA	NA	NA
a,a-Dimethylphenethylamine		NA	NA		NA	NA	NA	NA
Bis(2-Chloroethoxy)methane		NA	NA		NA	NA	NA	NA
Bis(2-Chloroethyl)ether		NA	NA		NA	NA	NA	NA
Bis(2-Chloroisopropyl)ether		NA	NA	F	300	NA	NA	NA
Bis(2-ethylhexyl)phthalate	F	6	0	D	NA	15,000	50,000	NA
o-Toluidine		NA	NA		NA	NA	NA	NA
p-Dimethylaminoazobenzene		NA	NA		NA	NA	NA	NA
p-Phenylenediamine		NA	NA		NA	NA	NA	NA
Azinphosmethyl		NA	NA		NA	NA	NA	NA
Pesticides/PCBs								
4-4'-DDD		NA	NA		NA	NA	NA	NA
4-4'-DDE		NA	NA		NA	NA	NA	NA
4-4'-DDT		NA	NA		NA	0.000024	0.000024	NA

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
Aldrin		NA	NA	D	0.3 (long term 70kg adult)	0.000074	0.000079	NA
Arochlor 1016	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1221	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1232	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1242	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1248	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1254	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Arochlor 1260	F	0.5 [o]	0 [o]	P	NA [o]	0.000079 [o]	0.000079 [o]	NA
Chlordane	F	2	0	F	2 (DWEL 70 kg adult)	0.00046	0.00048	NA
Demeton		NA	NA		NA	NA	NA	NA
Diazinon		NA	NA	F	0.6	NA	NA	NA
Dieldrin		NA	NA	F	0.5 (one day 10 kg child)	0.000071	0.000076	NA
Disulfoton		NA	NA	F	0.3	NA	NA	NA
Endosulfan II		NA	NA		NA	74 [p]	159 [p]	NA
Endosulfan sulfate		NA	NA		NA	NA	NA	NA
Endosulfan I		NA	NA		NA	74 [p]	159 [p]	NA
Endrin	F	2	2	F	2	1	NA	0.2
Endrin aldehyde		NA	NA		NA	NA	NA	NA
Endrin ketone		NA	NA		NA	NA	NA	NA
Ethion		NA	NA		NA	NA	NA	NA
Heptachlor	F	0.4	0	F	5 (longer term 10 kg child)	0.00028	0.00029	NA
Heptachlor epoxide	F	0.2	0	F	0.1 (longer term 10 kg child)	NA	NA	NA
Malathion		NA	NA	F	200	NA	NA	NA
Methoxychlor	F	40	40	F	40	100	NA	100

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (μg/L)
	Status [b]	MCL [c] (μg/L)	MCLG [d] (μg/L)	Status [b]	Health Advisory (μg/L)	Ingestion of Water and Fish (μg/L)	Consumption of Fish (μg/L)	
Ethyl parathion		NA	NA		NA	NA	NA	NA
Methyl parathion		NA	NA	F	2	NA	NA	NA
Toxaphene	F	3	0	F	3.5 (DWEL 70 kg adult)	0.00071	0.00073	5
Alpha-BHC		NA	NA		NA	0.0092	0.031	31
Alpha-Chlordane		NA	NA		NA	NA	NA	NA
Beta-BHC		NA	NA		NA	0.0163	0.0547	NA
Delta-BHC		NA	NA		NA	NA	NA	NA
Gamma-BHC (Lindane)		NA	NA		NA	0.0186	0.0625	4
Gamma-Chlordane		NA	NA		NA	NA	NA	NA
Herbicides								
2,4,5-T	L	NA	NA	F	70	NA	NA	NA
2,4,5-TP (Silvex)	F	50	50	F	50	NA	NA	10
2,4-D	F	70	70	F	70	NA	NA	100
Dinoseb	F	7	7	F	7	NA	NA	NA
Inorganics								
Aluminum	L	NA	NA	D	NA	NA	NA	NA
Antimony	F	6	6	F	3	146	45,000	NA
Arsenic	*	50	NA	D	NA	0.0022	0.0175	50
Barium	F	2000	2000	F	2000	1000	NA	1000
Beryllium	F	4	4	D	200 (DWEL)	0.0037	0.0641	NA
Boron	L	NA	NA	D	600	NA	NA	NA
Cadmium	F	5	5	F	5	10	NA	10
Calcium		NA	NA		NA	NA	NA	NA
Chromium	F	100 [q]	100 [q]	F	100 [q]	NA	NA	50

TABLE A.4-7 (Continued)

Chemical	U.S. EPA SDWA Standards [a]			U.S. EPA Drinking Water Health Advisories [a]		Federal Ambient Water Quality Criteria Protection of Human Health [e]		Ohio Drinking Water MCL [f] (µg/L)
	Status [b]	MCL [c] (µg/L)	MCLG [d] (µg/L)	Status [b]	Health Advisory (µg/L)	Ingestion of Water and Fish (µg/L)	Consumption of Fish (µg/L)	
Chromium, hexavalent	F [q]	100 [q]	100 [q]	F [q]	100 [q]	50	NA	NA
Cobalt		NA	NA		NA	NA	NA	NA
Copper	F	TT [r**]	1300		TT [rs]	170,000	3,433,000	NA
Cyanide	P	200	200	F	200	200	NA	NA
Iron		NA	NA		NA	300	NA	NA
Lead	F	TT [rt]	0		NA	50	NA	50
Magnesium		NA	NA		NA	NA	NA	NA
Manganese	L	NA	-	D	NA	50	100	NA
Mercury	F	2	2	F	2	0.144	0.146	2
Molybdenum	L	NA	NA	D	10 (longer term 10 kg child)	NA	NA	NA
Nickel	F	100	100	F	100	13.4	100	NA
Osmium		NA	NA		NA	NA	NA	NA
Selenium	F	50	50		NA	10	NA	10
Silver		NA	NA	D	100	50	NA	50
Thallium	F	2	0.5	F	0.4	13	48	NA
Tin		NA	NA		NA	NA	NA	NA
Uranium		NA	NA		NA	NA	NA	NA
Vanadium	L	NA	NA	D	NA	NA	NA	NA
Zinc	L	NA	NA	F	2000	NA	NA	NA

TABLE A.4-7 (Continued)

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[a]SDWA (Safe Drinking Water Act) standards and health advisories obtained from Drinking Water Regulations and Health Advisories, U.S. EPA, Office of Water. December 1993.

[b]Status Indicators:

- F Final
- D Draft
- L Listed for regulation
- P Proposed
- T Tentative
- * Under review
- ** Deferred

[c]MCL - Maximum contaminant level

[d]MCLG - Maximum contaminant level goal

[e]Obtained from Quality Criteria for Water 1986, U.S. EPA, Office of Water. September 1986.

[f]State of Ohio Drinking Water MCL (maximum contaminant level) obtained from Bureau of National Affairs, 1991. Environmental Reporter, Ohio Drinking Water Regulations, Sections 3745-81-11, 12,13,14,15, and 16.

[g]Ambient water quality criterion established for dichloroethenes in general

[h]Ambient water quality criterion established for chlorinated benzenes in general

[i]Drinking water standards for 1,3-dichloropropene

[j]Ambient water quality control criterion established for dichloropropene

[k]Ambient water quality criterion established for dichlorobenzenes in general

[l]Ambient water quality criterion established for dinitrophenols in general

[m]Ambient water quality control criterion based on carcinogenic PAHs in general

[n]Ambient water quality control criteria based on nitrosamines in general

[o]Established for PCBs in general

[p]Ambient water quality control criterion based on endosulfan in general

[q]As applicable to total chromium

[r]TT - Treatment technique

[s]Action level for copper is 1,300 μg/L

[t]Action level for lead is 15 μg/L

NA - Information not available

DWEL - Drinking water equivalence level

TABLE A.5-1
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR GROUNDSKEEPER

CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

		Air	Soil	Total
Area 1	Radionuclide Risk:	7E-06	6E-05	7E-05
	Chemical Risk:	1E-08	3E-05	3E-05
	Total Risk:	7E-06	9E-05	1E-04
	Total HI:	4.0E-03	7.7E-01	7.8E-01
Area 2	Radionuclide Risk:	1E-05	1E-03	1E-03
	Chemical Risk:	2E-08	1E-04	1E-04
	Total Risk:	1E-05	1E-03	1E-03
	Total HI:	5.6E-03	4.7E+00	4.7E+00
Area 3	Radionuclide Risk:	5E-05	3E-04	4E-04
	Chemical Risk:	2E-08	2E-04	2E-04
	Total Risk:	5E-05	5E-04	6E-04
	Total HI:	5.0E-03	2.9E+00	2.9E+00
Area 4	Radionuclide Risk:	5E-05	1E-03	1E-03
	Chemical Risk:	2E-08	1E-05	1E-05
	Total Risk:	5E-05	1E-03	1E-03
	Total HI:	5.7E-03	5.4E+00	5.4E+00
Area 5	Radionuclide Risk:	2E-06	5E-05	5E-05
	Chemical Risk:	2E-09	5E-06	5E-06
	Total Risk:	2E-06	5E-05	6E-05
	Total HI:	5.2E-04	3.5E-01	3.5E-01
Area 6	Radionuclide Risk:	1E-06	2E-04	2E-04
	Chemical Risk:	2E-09	2E-06	2E-06
	Total Risk:	1E-06	2E-04	2E-04
	Total HI:	4.8E-04	1.1E+00	1.1E+00
Area 7	Radionuclide Risk:	2E-06	2E-05	2E-05
	Chemical Risk:	2E-09	5E-07	5E-07
	Total Risk:	2E-06	2E-05	2E-05
	Total HI:	3.7E-04	9.2E-02	9.2E-02
Area 8	Radionuclide Risk:	4E-07	9E-06	9E-06
	Chemical Risk:	1E-09	7E-07	7E-07
	Total Risk:	4E-07	1E-05	1E-05
	Total HI:	2.0E-04	4.6E-02	4.6E-02
Area 9	Radionuclide Risk:	5E-07	2E-04	2E-04
	Chemical Risk:	2E-09	2E-06	2E-06
	Total Risk:	5E-07	2E-04	2E-04
	Total HI:	4.7E-04	1.2E-01	1.2E-01
Area 10	Radionuclide Risk:	4E-07	2E-05	2E-05
	Chemical Risk:	1E-09	3E-06	3E-06
	Total Risk:	4E-07	2E-05	2E-05
	Total HI:	3.1E-04	8.4E-02	8.5E-02

TABLE A.5-2
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR VISITOR

CURRENT LAND USE, WITH ACCESS CONTROLS

		Air	Soil	Total
Area 1	Radionuclide Risk:	2E-06	3E-05	3E-05
	Chemical Risk:	4E-09	0E+00	4E-09
	Total Risk:	2E-06	3E-05	3E-05
	Total HI:	9.9E-04	0.0E+00	9.9E-04

CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Area 1	Radionuclide Risk:	2E-06	3E-05	3E-05
	Chemical Risk:	4E-09	0E+00	4E-09
	Total Risk:	2E-06	3E-05	3E-05
	Total HI:	9.89E-04	0.00E+00	9.89E-04
Area 2	Radionuclide Risk:	2E-06	5E-04	5E-04
	Chemical Risk:	5E-09	0E+00	5E-09
	Total Risk:	2E-06	5E-04	5E-04
	Total HI:	1.4E-03	0.0E+00	1.4E-03
Area 3	Radionuclide Risk:	1E-05	1E-04	1E-04
	Chemical Risk:	5E-09	0E+00	5E-09
	Total Risk:	1E-05	1E-04	1E-04
	Total HI:	1.2E-03	0.0E+00	1.2E-03
Area 4	Radionuclide Risk:	1E-05	4E-04	4E-04
	Chemical Risk:	6E-09	0E+00	6E-09
	Total Risk:	1E-05	4E-04	4E-04
	Total HI:	1.4E-03	0.0E+00	1.4E-03

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TABLE A.5-3
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR TRESPASSING YOUTH[a]

CURRENT LAND USE, WITH ACCESS CONTROLS

		Air	Soil	Surface Water	Sediment	Total
Area 5	Radionuclide Risk:	3E-07	1E-05	0E+00	0E+00	1E-05
	Chemical Risk:	4E-10	3E-06	0E+00	0E+00	3E-06
	Total Risk:	3E-07	2E-05	0E+00	0E+00	2E-05
	Total HI:	2.1E-04	5.8E-01	0.0E+00	0.0E+00	5.8E-01
Area 6	Radionuclide Risk:	1E-07	4E-05	0E+00	0E+00	4E-05
	Chemical Risk:	3E-10	6E-07	0E+00	0E+00	6E-07
	Total Risk:	1E-07	4E-05	0E+00	0E+00	4E-05
	Total HI:	1.9E-04	1.8E+00	0.0E+00	0.0E+00	1.8E+00
Area 7	Radionuclide Risk:	2E-07	5E-06	0E+00	0E+00	5E-06
	Chemical Risk:	3E-10	1E-07	0E+00	0E+00	1E-07
	Total Risk:	2E-07	5E-06	0E+00	0E+00	5E-06
	Total HI:	1.5E-04	1.5E-01	0.0E+00	0.0E+00	1.5E-01
Area 8	Radionuclide Risk:	5E-08	2E-06	0E+00	0E+00	2E-06
	Chemical Risk:	2E-10	2E-07	0E+00	0E+00	2E-07
	Total Risk:	5E-08	3E-06	0E+00	0E+00	3E-06
	Total HI:	8.2E-05	7.4E-02	0.0E+00	0.0E+00	7.4E-02
Area 9	Radionuclide Risk:	6E-08	6E-05	1E-06	5E-07	6E-05
	Chemical Risk:	3E-10	6E-07	5E-06	0E+00	6E-06
	Total Risk:	6E-08	6E-05	7E-06	5E-07	6E-05
	Total HI:	1.9E-04	1.8E-01	9.6E-02	2.8E-02	3.0E-01
Area 10	Radionuclide Risk:	5E-08	4E-06	2E-08	9E-07	5E-06
	Chemical Risk:	2E-10	7E-07	1E-06	2E-07	2E-06
	Total Risk:	5E-08	5E-06	1E-06	1E-06	8E-06
	Total HI:	1.3E-04	1.3E-01	4.3E-02	9.0E-02	2.6E-01

Note: [a] The trespassing youth is similar to the exploring youth except under the assumption of with access controls, this receptor is assumed to not have access to controlled Areas 1 to 4.
NA – Not applicable.

TABLE A.5-4
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS

CURRENT LAND USE - WITH ACCESS CONTROLS

		Air	Soil	Surface Water	Total
Grazing Area 1	Radionuclide Risk:	2E-09	2E-04	3E-07	2E-04
	Chemical Risk:	3E-09	1E-04	2E-06	1E-04
	Total Risk:	4E-09	3E-04	2E-06	3E-04
	Total HI:	1.7E-04	9.8E+00	1.6E-02	9.8E+00
Grazing Area 2	Radionuclide Risk:	6E-10	1E-04	0E+00	1E-04
	Chemical Risk:	4E-09	8E-06	0E+00	8E-06
	Total Risk:	4E-09	1E-04	0E+00	1E-04
	Total HI:	2.4E-04	7.0E+00	0.0E+00	7.0E+00
Grazing Area 3	Radionuclide Risk:	2E-09	9E-05	0E+00	9E-05
	Chemical Risk:	3E-09	4E-05	0E+00	4E-05
	Total Risk:	4E-09	1E-04	0E+00	1E-04
	Total HI:	1.7E-04	7.9E+00	0.0E+00	7.9E+00

CURRENT LAND USE - WITHOUT ACCESS CONTROLS

Grazing Area 1	Radionuclide Risk:	2E-09	2E-04	3E-07	2E-04
	Chemical Risk:	3E-09	1E-04	2E-06	1E-04
	Total Risk:	4E-09	3E-04	2E-06	3E-04
	Total HI:	1.68E-04	9.83E+00	1.59E-02	9.84E+00
Grazing Area 2	Radionuclide Risk:	6E-10	1E-04	0E+00	1E-04
	Chemical Risk:	4E-09	8E-06	0E+00	8E-06
	Total Risk:	4E-09	1E-04	0E+00	1E-04
	Total HI:	2.37E-04	7.05E+00	0.00E+00	7.05E+00
Grazing Area 3	Radionuclide Risk:	2E-09	9E-05	0E+00	9E-05
	Chemical Risk:	3E-09	4E-05	0E+00	4E-05
	Total Risk:	4E-09	1E-04	0E+00	1E-04
	Total HI:	1.68E-04	7.93E+00	0.00E+00	7.93E+00
Grazing Area 4	Radionuclide Risk:	3E-09	6E-04	2E-05	6E-04
	Chemical Risk:	5E-09	1E-02	8E-07	1E-02
	Total Risk:	8E-09	1E-02	2E-05	1E-02
	Total HI:	3.1E-04	2.2E+01	2.2E-02	2.2E+01

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TABLE A.5-5
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RME FARMER

CURRENT LAND USE, WITH ACCESS CONTROLS*

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	6E-06	9E-04	7E-06	9E-04
	Chemical Risk:	3E-08	8E-05	1E-03	1E-03
	Total Risk:	6E-06	1E-03	1E-03	2E-03
	Total HI:	1.02E-03	2.20E+01	1.4E+02	1.6E+02
Northern Fenceline	Radionuclide Risk:	2E-06	5E-04	8E-06	5E-04
	Chemical Risk:	1E-07	2E-05	2E-03	2E-03
	Total Risk:	2E-06	5E-04	2E-03	3E-03
	Total HI:	5.31E-04	6.67E+00	1.4E+01	2.1E+01
Southern Fenceline	Radionuclide Risk:	8E-07	6E-04	7E-05	7E-04
	Chemical Risk:	1E-08	0E+00	1E-02	1E-02
	Total Risk:	9E-07	6E-04	1E-02	1E-02
	Total HI:	2.97E-04	8.85E-02	3.4E+01	3.4E+01
Western Fenceline	Radionuclide Risk:	1E-06	6E-04	4E-06	6E-04
	Chemical Risk:	4E-08	0E+00	2E-07	2E-07
	Total Risk:	1E-06	6E-04	5E-06	6E-04
	Total HI:	3.28E-04	8.11E-02	1.0E+01	1.0E+01
Northeast of FEMP	Radionuclide Risk:	5E-07	5E-04	0E+00	5E-04
	Chemical Risk:	4E-08	1E-04	0E+00	1E-04
	Total Risk:	5E-07	6E-04	0E+00	6E-04
	Total HI:	7.12E-04	6.23E+00	0.0E+00	6.2E+00
Southeast of FEMP	Radionuclide Risk:	3E-07	6E-04	3E-06	7E-04
	Chemical Risk:	1E-08	0E+00	0E+00	1E-08
	Total Risk:	3E-07	6E-04	3E-06	7E-04
	Total HI:	4.38E-04	8.11E-02	1.8E+00	1.9E+00

CURRENT LAND USE, WITHOUT ACCESS CONTROLS*

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	6E-06	9E-04	3E-05	9E-04
	Chemical Risk:	3E-08	8E-05	4E-03	4E-03
	Total Risk:	6E-06	1E-03	4E-03	5E-03
	Total HI:	1.0E-03	2.2E+01	2.0E+02	2.3E+02
Northern Fenceline	Radionuclide Risk:	2E-06	5E-04	5E-05	6E-04
	Chemical Risk:	1E-07	2E-05	1E-02	1E-02
	Total Risk:	2E-06	5E-04	1E-02	1E-02
	Total HI:	5.3E-04	6.7E+00	3.3E+01	3.9E+01
Southern Fenceline	Radionuclide Risk:	8E-07	6E-04	4E-04	1E-03
	Chemical Risk:	1E-08	0E+00	3E-02	3E-02
	Total Risk:	9E-07	6E-04	3E-02	3E-02
	Total HI:	3.0E-04	8.8E-02	7.6E+01	7.6E+01
Western Fenceline	Radionuclide Risk:	1E-06	6E-04	2E-05	7E-04
	Chemical Risk:	4E-08	0E+00	4E-07	4E-07
	Total Risk:	1E-06	6E-04	2E-05	7E-04
	Total HI:	3.3E-04	8.1E-02	1.1E+01	1.1E+01
Northeast of FEMP	Radionuclide Risk:	5E-07	5E-04	0E+00	5E-04
	Chemical Risk:	4E-08	1E-04	0E+00	1E-04
	Total Risk:	5E-07	6E-04	0E+00	6E-04
	Total HI:	7.1E-04	6.2E+00	0.0E+00	6.2E+00
Southeast of FEMP	Radionuclide Risk:	3E-07	6E-04	1E-05	7E-04
	Chemical Risk:	1E-08	0E+00	0E+00	1E-08
	Total Risk:	3E-07	6E-04	1E-05	7E-04
	Total HI:	4.4E-04	8.1E-02	2.7E+00	2.8E+00

Note: * With access controls assumes off-property use of bottled water for ingestion only. Without access controls assumes full unrestricted use of groundwater.

TABLE A.5-6
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY CHILD

CURRENT LAND USE, WITH ACCESS CONTROLS*

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	1E-07	1E-04	1E-06	1E-04
	Chemical Risk:	9E-09	4E-05	3E-04	3E-04
	Total Risk:	1E-07	1E-04	3E-04	4E-04
	Total HI:	2.08E-03	1.04E+02	7.3E+02	8.3E+02
Northern Fenceline	Radionuclide Risk:	4E-08	5E-05	9E-07	5E-05
	Chemical Risk:	4E-08	8E-06	7E-04	8E-04
	Total Risk:	8E-08	6E-05	7E-04	8E-04
	Total HI:	1.39E-03	3.81E+01	8.7E+01	1.2E+02
Southern Fenceline	Radionuclide Risk:	2E-08	6E-05	7E-06	7E-05
	Chemical Risk:	3E-09	0E+00	4E-03	4E-03
	Total Risk:	2E-08	6E-05	4E-03	4E-03
	Total HI:	5.93E-04	2.75E-01	1.7E+02	1.7E+02
Western Fenceline	Radionuclide Risk:	2E-08	7E-05	7E-07	7E-05
	Chemical Risk:	1E-08	0E+00	8E-08	9E-08
	Total Risk:	4E-08	7E-05	8E-07	7E-05
	Total HI:	7.22E-04	2.52E-01	4.3E+01	4.3E+01
Northeast of FEMP	Radionuclide Risk:	9E-09	8E-05	0E+00	8E-05
	Chemical Risk:	1E-08	7E-05	0E+00	7E-05
	Total Risk:	2E-08	1E-04	0E+00	1E-04
	Total HI:	1.62E-03	2.84E+01	0.0E+00	2.8E+01
Southeast of FEMP	Radionuclide Risk:	6E-09	6E-05	4E-07	6E-05
	Chemical Risk:	4E-09	0E+00	0E+00	4E-09
	Total Risk:	1E-08	6E-05	4E-07	6E-05
	Total HI:	8.63E-04	2.52E-01	1.0E+01	1.1E+01

CURRENT LAND USE, WITHOUT ACCESS CONTROLS*

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	1E-07	1E-04	2E-06	1E-04
	Chemical Risk:	9E-09	4E-05	8E-04	9E-04
	Total Risk:	1E-07	1E-04	8E-04	1E-03
	Total HI:	2.1E-03	1.0E+02	8.7E+02	9.7E+02
Northern Fenceline	Radionuclide Risk:	4E-08	5E-05	3E-06	5E-05
	Chemical Risk:	4E-08	8E-06	2E-03	2E-03
	Total Risk:	8E-08	6E-05	2E-03	2E-03
	Total HI:	1.4E-03	3.8E+01	1.3E+02	1.7E+02
Southern Fenceline	Radionuclide Risk:	2E-08	6E-05	2E-05	8E-05
	Chemical Risk:	3E-09	0E+00	7E-03	7E-03
	Total Risk:	2E-08	6E-05	7E-03	7E-03
	Total HI:	5.9E-04	2.7E-01	2.7E+02	2.7E+02
Western Fenceline	Radionuclide Risk:	2E-08	7E-05	1E-06	7E-05
	Chemical Risk:	1E-08	0E+00	1E-07	1E-07
	Total Risk:	4E-08	7E-05	2E-06	7E-05
	Total HI:	7.2E-04	2.5E-01	4.5E+01	4.5E+01
Northeast of FEMP	Radionuclide Risk:	9E-09	8E-05	0E+00	8E-05
	Chemical Risk:	1E-08	7E-05	0E+00	7E-05
	Total Risk:	2E-08	1E-04	0E+00	1E-04
	Total HI:	1.6E-03	2.8E+01	0.0E+00	2.8E+01
Southeast of FEMP	Radionuclide Risk:	6E-09	6E-05	8E-07	6E-05
	Chemical Risk:	4E-09	0E+00	0E+00	4E-09
	Total Risk:	1E-08	6E-05	8E-07	6E-05
	Total HI:	8.6E-04	2.5E-01	1.2E+01	1.3E+01

Note: * With access controls assumes off-property use of bottled water for ingestion only. Without access controls assumes full unrestricted use of groundwater.

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TABLE A.5-7
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR GREAT MIAMI RIVER USER

CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

		Household Use of GMR	Agricultural Use of GMR	Recreational Use of GMR
GMR Outfall	Radionuclide Risk:	4E-05	8E-06	2E-05
	Chemical Risk:	1E-03	3E-04	3E-04
	Total Risk:	1E-03	3E-04	3E-04
	Total HI:	8.62E-01	1.39E+00	2.87E-01
Confluence with Paddys Run	Radionuclide Risk:	4E-05	8E-06	2E-05
	Chemical Risk:	5E-04	1E-04	4E-03
	Total Risk:	6E-04	1E-04	5E-03
	Total HI:	9.17E+00	1.37E+01	1.99E+02

TABLE A.5-8
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR EXPLORING YOUTH[a]

CURRENT LAND USE, WITHOUT ACCESS CONTROLS

		Air	Soil	Surface Water	Sediment	Total
Area 1	Radionuclide Risk:	1E-07	4E-06	0E+00	0E+00	4E-06
	Chemical Risk:	4E-10	1E-06	0E+00	0E+00	1E-06
	Total Risk:	1E-07	5E-06	0E+00	0E+00	5E-06
	Total HI:	2.2E-04	1.7E-01	0.0E+00	0.0E+00	1.7E-01
Area 2	Radionuclide Risk:	2E-07	7E-05	0E+00	0E+00	7E-05
	Chemical Risk:	6E-10	8E-06	0E+00	0E+00	8E-06
	Total Risk:	2E-07	8E-05	0E+00	0E+00	8E-05
	Total HI:	3.1E-04	1.1E+00	0.0E+00	0.0E+00	1.1E+00
Area 3	Radionuclide Risk:	8E-07	2E-05	0E+00	0E+00	2E-05
	Chemical Risk:	5E-10	1E-05	0E+00	0E+00	1E-05
	Total Risk:	8E-07	3E-05	0E+00	0E+00	3E-05
	Total HI:	2.8E-04	6.5E-01	0.0E+00	0.0E+00	6.6E-01
Area 4	Radionuclide Risk:	8E-07	7E-05	3E-07	1E-06	7E-05
	Chemical Risk:	7E-10	1E-06	3E-07	2E-07	1E-06
	Total Risk:	8E-07	7E-05	5E-07	1E-06	7E-05
	Total HI:	3.2E-04	1.2E+00	1.5E-01	1.0E-01	1.5E+00
Area 5	Radionuclide Risk:	3E-07	1E-05	0E+00	0E+00	1E-05
	Chemical Risk:	4E-10	3E-06	0E+00	0E+00	3E-06
	Total Risk:	3E-07	2E-05	0E+00	0E+00	2E-05
	Total HI:	2.1E-04	5.8E-01	0.0E+00	0.0E+00	5.8E-01
Area 6	Radionuclide Risk:	1E-07	4E-05	0E+00	0E+00	4E-05
	Chemical Risk:	3E-10	6E-07	0E+00	0E+00	6E-07
	Total Risk:	1E-07	4E-05	0E+00	0E+00	4E-05
	Total HI:	1.9E-04	1.8E+00	0.0E+00	0.0E+00	1.8E+00
Area 7	Radionuclide Risk:	2E-07	5E-06	0E+00	0E+00	5E-06
	Chemical Risk:	3E-10	1E-07	0E+00	0E+00	1E-07
	Total Risk:	2E-07	5E-06	0E+00	0E+00	5E-06
	Total HI:	1.5E-04	1.5E-01	0.0E+00	0.0E+00	1.5E-01
Area 8	Radionuclide Risk:	5E-08	2E-06	0E+00	0E+00	2E-06
	Chemical Risk:	2E-10	2E-07	0E+00	0E+00	2E-07
	Total Risk:	5E-08	3E-06	0E+00	0E+00	3E-06
	Total HI:	8.2E-05	7.4E-02	0.0E+00	0.0E+00	7.4E-02
Area 9	Radionuclide Risk:	6E-08	6E-05	1E-06	5E-07	6E-05
	Chemical Risk:	3E-10	6E-07	5E-06	0E+00	6E-06
	Total Risk:	6E-08	6E-05	7E-06	5E-07	6E-05
	Total HI:	1.9E-04	1.8E-01	9.6E-02	2.8E-02	3.0E-01
Area 10	Radionuclide Risk:	5E-08	4E-06	2E-08	9E-07	5E-06
	Chemical Risk:	2E-10	7E-07	1E-06	2E-07	2E-06
	Total Risk:	5E-08	5E-06	1E-06	1E-06	8E-06
	Total HI:	1.3E-04	1.3E-01	4.3E-02	9.0E-02	2.6E-01
Paddys Run Off-property	Radionuclide Risk:	0E+00	0E+00	2E-08	8E-07	8E-07
	Chemical Risk:	0E+00	0E+00	5E-07	1E-07	6E-07
	Total Risk:	0E+00	0E+00	5E-07	9E-07	1E-06
	Total HI:	0.0E+00	0.0E+00	2.6E+01	4.2E-02	2.6E+01

Note: [a] The exploring youth is similar to the trespassing youth except under the assumption of no access controls, this receptor is assumed to have unrestricted access to controlled Areas 1 to 4.
NA – Not applicable.

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TABLE A.5-9
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR GROUNDSKEEPER

FUTURE LAND USE, WITH ACCESS CONTROLS

		Air	Soil	Total
Production Area	Radionuclide Risk:	1E-04	1E-03	1E-03
	Chemical Risk:	6E-07	6E-05	6E-05
	Total Risk:	1E-04	1E-03	1E-03
	Total HI:	1.5E-01	4.3E+00	4.5E+00
Northwest Area	Radionuclide Risk:	8E-06	8E-06	2E-05
	Chemical Risk:	2E-07	5E-06	5E-06
	Total Risk:	8E-06	1E-05	2E-05
	Total HI:	3.9E-02	3.3E-01	3.7E-01
Northeast Area	Radionuclide Risk:	5E-05	7E-04	7E-04
	Chemical Risk:	3E-07	8E-06	8E-06
	Total Risk:	5E-05	7E-04	7E-04
	Total HI:	7.8E-02	1.5E+00	1.5E+00
Southeast Area	Radionuclide Risk:	2E-05	5E-06	3E-05
	Chemical Risk:	1E-07	4E-06	4E-06
	Total Risk:	2E-05	9E-06	3E-05
	Total HI:	4.1E-02	2.7E-01	3.1E-01
Southwest Area	Radionuclide Risk:	2E-05	1E-05	4E-05
	Chemical Risk:	1E-07	6E-06	6E-06
	Total Risk:	2E-05	2E-05	4E-05
	Total HI:	4.2E-02	6.0E-01	6.5E-01
Waste Pit Area	Radionuclide Risk:	1E-05	8E-04	8E-04
	Chemical Risk:	3E-07	2E-05	2E-05
	Total Risk:	1E-05	8E-04	9E-04
	Total HI:	8.8E-02	8.3E-01	9.2E-01
Shooting Range	Radionuclide Risk:	2E-05	1E-06	3E-05
	Chemical Risk:	2E-07	1E-05	1E-05
	Total Risk:	2E-05	1E-05	4E-05
	Total HI:	5.9E-02	7.5E-01	8.1E-01

TABLE A.5-10
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR RECREATIONAL USERS OF THE FEMP

FUTURE LAND USE WITH ACCESS CONTROLS (FUTURE GOVERNMENT RESERVE)

		User of a Developed Park					User of an Undeveloped Park					User of a Wildlife Reserve				
		Air	Soil	Surface Water	Sediment	Total	Air	Soil	Surface Water	Sediment	Total	Air	Soil	Surface Water	Sediment	Total
Production Area	Radionuclide Risk:	1E-05	4E-04	0E+00	0E+00	4E-04	4E-06	2E-04	0E+00	0E+00	2E-04	4E-06	2E-04	0E+00	0E+00	2E-04
	Chemical Risk:	9E-08	3E-05	0E+00	0E+00	3E-05	3E-08	2E-05	0E+00	0E+00	2E-05	2E-08	2E-05	0E+00	0E+00	2E-05
	Total Risk:	1E-05	5E-04	0E+00	0E+00	5E-04	5E-06	2E-04	0E+00	0E+00	2E-04	4E-06	2E-04	0E+00	0E+00	2E-04
	Total HI:	7.8E-03	9.8E-01	0.0E+00	0.0E+00	9.9E-01	3.0E-03	8.5E-01	0.0E+00	0.0E+00	8.5E-01	2.3E-03	7.1E-01	0.0E+00	0.0E+00	7.2E-01
Northwest Area	Radionuclide Risk:	7E-07	4E-06	0E+00	0E+00	4E-06	3E-07	2E-06	0E+00	0E+00	2E-06	3E-07	1E-06	0E+00	0E+00	2E-06
	Chemical Risk:	4E-08	1E-06	0E+00	0E+00	1E-06	1E-08	5E-07	0E+00	0E+00	5E-07	1E-08	4E-07	0E+00	0E+00	4E-07
	Total Risk:	8E-07	5E-06	0E+00	0E+00	6E-06	3E-07	2E-06	0E+00	0E+00	2E-06	3E-07	2E-06	0E+00	0E+00	2E-06
	Total HI:	2.1E-03	7.3E-02	0.0E+00	0.0E+00	7.5E-02	8.0E-04	6.3E-02	0.0E+00	0.0E+00	6.3E-02	6.1E-04	5.3E-02	0.0E+00	0.0E+00	5.3E-02
Northeast Area	Radionuclide Risk:	4E-06	3E-04	0E+00	0E+00	3E-04	2E-06	1E-04	0E+00	0E+00	1E-04	2E-06	1E-04	0E+00	0E+00	1E-04
	Chemical Risk:	5E-08	3E-06	0E+00	0E+00	3E-06	2E-08	2E-06	0E+00	0E+00	2E-06	1E-08	1E-06	0E+00	0E+00	1E-06
	Total Risk:	4E-06	3E-04	0E+00	0E+00	3E-04	2E-06	1E-04	0E+00	0E+00	1E-04	2E-06	1E-04	0E+00	0E+00	1E-04
	Total HI:	4.2E-03	3.3E-01	0.0E+00	0.0E+00	3.3E-01	1.6E-03	2.9E-01	0.0E+00	0.0E+00	2.9E-01	1.2E-03	2.4E-01	0.0E+00	0.0E+00	2.4E-01
Southeast Area	Radionuclide Risk:	2E-06	2E-06	2E-09	5E-05	5E-05	1E-06	1E-06	2E-09	5E-05	5E-05	8E-07	9E-07	2E-09	5E-05	5E-05
	Chemical Risk:	2E-08	1E-06	1E-06	3E-06	6E-06	8E-09	4E-07	1E-06	3E-06	5E-06	6E-09	3E-07	1E-06	3E-06	5E-06
	Total Risk:	2E-06	3E-06	1E-06	5E-05	6E-05	1E-06	1E-06	1E-06	5E-05	6E-05	8E-07	1E-06	1E-06	5E-05	6E-05
	Total HI:	2.2E-03	5.9E-02	3.3E-02	1.6E+00	1.7E+00	8.3E-04	5.0E-02	3.3E-02	1.6E+00	1.6E+00	6.4E-04	4.2E-02	3.3E-02	1.6E+00	1.6E+00
Southwest Area	Radionuclide Risk:	2E-06	6E-06	1E-06	3E-05	4E-05	1E-06	2E-06	1E-06	3E-05	3E-05	9E-07	2E-06	1E-06	3E-05	3E-05
	Chemical Risk:	2E-08	2E-06	1E-05	2E-06	1E-05	8E-09	5E-07	1E-05	2E-06	1E-05	6E-09	4E-07	1E-05	2E-06	1E-05
	Total Risk:	2E-06	7E-06	1E-05	3E-05	5E-05	1E-06	3E-06	1E-05	3E-05	4E-05	9E-07	3E-06	1E-05	3E-05	4E-05
	Total HI:	2.3E-03	1.4E-01	3.2E-01	1.0E+00	1.5E+00	8.6E-04	1.2E-01	3.2E-01	1.0E+00	1.4E+00	6.6E-04	1.0E-01	3.2E-01	1.0E+00	1.4E+00
Waste Pit Area	Radionuclide Risk:	9E-07	4E-04	1E-06	6E-06	4E-04	4E-07	2E-04	1E-06	6E-06	2E-04	4E-07	1E-04	1E-06	6E-06	2E-04
	Chemical Risk:	5E-08	5E-06	5E-06	4E-07	1E-05	2E-08	2E-06	5E-06	4E-07	8E-06	2E-08	1E-06	5E-06	4E-07	7E-06
	Total Risk:	1E-06	4E-04	7E-06	7E-06	4E-04	4E-07	2E-04	7E-06	7E-06	2E-04	4E-07	1E-04	7E-06	7E-06	2E-04
	Total HI:	4.7E-03	1.8E-01	9.6E-02	4.4E-01	7.2E-01	1.8E-03	1.5E-01	9.6E-02	4.4E-01	6.9E-01	1.4E-03	1.3E-01	9.6E-02	4.4E-01	6.6E-01
Shooting Range	Radionuclide Risk:	2E-06	5E-07	0E+00	0E+00	3E-06	1E-06	2E-07	0E+00	0E+00	1E-06	9E-07	2E-07	0E+00	0E+00	1E-06
	Chemical Risk:	3E-08	3E-06	0E+00	0E+00	3E-06	1E-08	1E-06	0E+00	0E+00	1E-06	9E-09	1E-06	0E+00	0E+00	1E-06
	Total Risk:	2E-06	4E-06	0E+00	0E+00	6E-06	1E-06	2E-06	0E+00	0E+00	3E-06	9E-07	1E-06	0E+00	0E+00	2E-06
	Total HI:	3.2E-03	1.7E-01	0.0E+00	0.0E+00	1.7E-01	1.2E-03	1.4E-01	0.0E+00	0.0E+00	1.4E-01	9.2E-04	1.2E-01	0.0E+00	0.0E+00	1.2E-01

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TABLE A.5-11
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RME FARMER
FUTURE LAND USE, WITH AND WITHOUT ACCESS CONTROLS

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	6E-03	1E-03	1E-03	8E-03
	Chemical Risk:	6E-07	8E-05	1E-05	9E-05
	Total Risk:	6E-03	1E-03	1E-03	9E-03
	Total HI:	2.6E-02	2.2E+01	1.8E+01	4.0E+01
Northern Fenceline	Radionuclide Risk:	8E-06	2E-04	6E-05	3E-04
	Chemical Risk:	3E-06	2E-05	9E-06	3E-05
	Total Risk:	1E-05	2E-04	7E-05	3E-04
	Total HI:	1.5E-02	6.7E+00	9.4E-01	7.6E+00
Southern Fenceline	Radionuclide Risk:	8E-06	2E-04	2E-03	2E-03
	Chemical Risk:	3E-07	0E+00	4E-02	4E-02
	Total Risk:	9E-06	2E-04	4E-02	4E-02
	Total HI:	7.9E-03	8.8E-02	2.6E+01	2.6E+01
Western Fenceline	Radionuclide Risk:	5E-06	3E-04	8E-05	4E-04
	Chemical Risk:	1E-06	0E+00	3E-05	3E-05
	Total Risk:	6E-06	3E-04	1E-04	4E-04
	Total HI:	8.8E-03	8.1E-02	5.6E-01	6.5E-01
Farm Northeast of FEMP	Radionuclide Risk:	1E-05	5E-04	4E-08	5E-04
	Chemical Risk:	1E-06	1E-04	0E+00	1E-04
	Total Risk:	2E-05	6E-04	4E-08	6E-04
	Total HI:	1.9E-02	6.2E+00	5.5E-04	6.3E+00
Farm Southeast of FEMP	Radionuclide Risk:	9E-06	5E-04	9E-04	1E-03
	Chemical Risk:	4E-07	0E+00	1E-02	1E-02
	Total Risk:	9E-06	5E-04	1E-02	1E-02
	Total HI:	1.2E-02	8.1E-02	1.2E+01	1.2E+01
Farm at Well 2071	Radionuclide Risk:	2E-05	NA	1E-06	2E-05
	Chemical Risk:	6E-07	NA	2E-04	2E-04
	Total Risk:	2E-05	NA	2E-04	2E-04
	Total HI:	1.3E-02	NA	3.7E-02	5.1E-02
Farm at Well 2119	Radionuclide Risk:	2E-05	NA	2E-04	2E-04
	Chemical Risk:	5E-07	NA	3E-19	5E-07
	Total Risk:	2E-05	NA	2E-04	2E-04
	Total HI:	1.5E-02	NA	2.6E+00	2.6E+00
Farm at a Well near GMR	Radionuclide Risk:	2E-06	NA	1E-04	1E-04
	Chemical Risk:	1E-08	NA	0E+00	1E-08
	Total Risk:	2E-06	NA	1E-04	1E-04
	Total HI:	2.5E-04	NA	1.5E+00	1.5E+00

Note: NA – Not applicable.

TABLE A.5-12
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY CHILD

FUTURE LAND USE, WITH AND WITHOUT ACCESS CONTROLS

		Air	Soil	Groundwater	Total
Eastern Fenceline	Radionuclide Risk:	1E-04	1E-04	7E-05	3E-04
	Chemical Risk:	2E-07	4E-05	2E-06	4E-05
	Total Risk:	1E-04	2E-04	8E-05	3E-04
	Total HI:	5.1E-02	1.0E+02	5.4E+01	1.6E+02
Northern Fenceline	Radionuclide Risk:	2E-07	3E-05	4E-06	3E-05
	Chemical Risk:	1E-06	8E-06	2E-06	1E-05
	Total Risk:	1E-06	4E-05	6E-06	4E-05
	Total HI:	3.8E-02	3.8E+01	4.3E+00	4.2E+01
Southern Fenceline	Radionuclide Risk:	2E-07	2E-05	1E-04	1E-04
	Chemical Risk:	9E-08	0E+00	9E-03	9E-03
	Total Risk:	3E-07	2E-05	9E-03	9E-03
	Total HI:	1.6E-02	2.7E-01	7.3E+01	7.3E+01
Western Fenceline	Radionuclide Risk:	1E-07	4E-05	5E-06	5E-05
	Chemical Risk:	4E-07	0E+00	6E-06	6E-06
	Total Risk:	5E-07	4E-05	1E-05	5E-05
	Total HI:	1.9E-02	2.5E-01	2.1E+00	2.4E+00
Farm Northeast of FEMP	Radionuclide Risk:	4E-07	8E-05	2E-09	8E-05
	Chemical Risk:	3E-07	7E-05	0E+00	7E-05
	Total Risk:	7E-07	1E-04	2E-09	1E-04
	Total HI:	4.4E-02	2.8E+01	1.5E-03	2.8E+01
Farm Southeast of FEMP	Radionuclide Risk:	2E-07	8E-05	5E-05	1E-04
	Chemical Risk:	1E-07	0E+00	2E-03	2E-03
	Total Risk:	3E-07	8E-05	2E-03	2E-03
	Total HI:	2.3E-02	2.5E-01	3.4E+01	3.4E+01
Farm at Well 2071	Radionuclide Risk:	4E-07	NA	8E-08	5E-07
	Chemical Risk:	2E-07	NA	5E-05	5E-05
	Total Risk:	6E-07	NA	5E-05	5E-05
	Total HI:	2.9E-02	NA	9.9E-02	1.3E-01
Farm at Well 2119	Radionuclide Risk:	4E-07	NA	1E-05	1E-05
	Chemical Risk:	1E-07	NA	7E-20	1E-07
	Total Risk:	5E-07	NA	1E-05	1E-05
	Total HI:	2.9E-02	NA	7.4E+00	7.4E+00
Farm at a Well near GMR	Radionuclide Risk:	3E-08	NA	7E-06	7E-06
	Chemical Risk:	4E-09	NA	0E+00	4E-09
	Total Risk:	3E-08	NA	7E-06	7E-06
	Total HI:	5.4E-04	NA	4.1E+00	4.1E+00

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TABLE A.5-13
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR GREAT MIAMI RIVER USER

FUTURE LAND USE, WITH AND WITHOUT ACCESS CONTROLS

		Household Use of GMR	Agricultural Use of GMR	Recreational Use of GMR
Confluence with Paddys Run	Radionuclide Risk:	2E-04	5E-05	1E-05
	Chemical Risk:	3E-04	4E-05	1E-04
	Total Risk:	5E-04	8E-05	2E-04
	Total HI:	1.82E+00	5.29E-01	8.53E-01

TABLE A.5-14
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RME FARMER

FUTURE LAND USE, WITHOUT ACCESS CONTROLS (FUTURE AGRICULTURAL USE)

		Air	Soil	Groundwater	Total
Production Area	Radionuclide Risk:	1E-04	1E-02	3E-03	2E-02
	Chemical Risk:	2E-06	6E-03	6E-04	7E-03
	Total Risk:	1E-04	2E-02	4E-03	2E-02
	Total HI:	6.7E-02	4.6E+01	4.0E+01	8.7E+01
Northwest Area	Radionuclide Risk:	8E-06	3E-04	2E-04	5E-04
	Chemical Risk:	6E-06	6E-05	9E-05	1E-04
	Total Risk:	1E-05	3E-04	3E-04	6E-04
	Total HI:	2.6E-02	9.2E+00	1.6E+00	1.1E+01
Northeast Area	Radionuclide Risk:	5E-05	9E-03	2E-03	1E-02
	Chemical Risk:	2E-06	1E-03	3E-04	1E-03
	Total Risk:	5E-05	1E-02	2E-03	1E-02
	Total HI:	3.9E-02	2.8E+01	2.4E+01	5.3E+01
Southeast Area	Radionuclide Risk:	2E-05	2E-04	1E-02	1E-02
	Chemical Risk:	5E-07	4E-05	4E-04	4E-04
	Total Risk:	2E-05	2E-04	1E-02	1E-02
	Total HI:	1.8E-02	1.0E+01	1.1E+02	1.2E+02
Southwest Area	Radionuclide Risk:	2E-05	3E-04	7E-03	7E-03
	Chemical Risk:	6E-07	1E-04	3E-04	5E-04
	Total Risk:	2E-05	5E-04	7E-03	8E-03
	Total HI:	1.9E-02	5.3E+00	7.9E+01	8.4E+01
Waste Pit Area	Radionuclide Risk:	1E-05	1E-02	8E-04	1E-02
	Chemical Risk:	3E-06	3E-03	1E-04	3E-03
	Total Risk:	1E-05	1E-02	9E-04	1E-02
	Total HI:	3.9E-02	9.8E+00	9.5E+00	1.9E+01
Shooting Range	Radionuclide Risk:	2E-05	1E-04	1E-02	1E-02
	Chemical Risk:	6E-07	3E-04	4E-04	6E-04
	Total Risk:	2E-05	4E-04	1E-02	1E-02
	Total HI:	2.5E-02	2.6E+02	1.1E+02	3.7E+02

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TABLE A.5-15
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY CT FARMER

FUTURE LAND USE, WITHOUT ACCESS CONTROLS (FUTURE AGRICULTURAL USE)

		Air	Soil	Groundwater	Total
Production Area	Radionuclide Risk:	8E-06	1E-03	2E-04	1E-03
	Chemical Risk:	1E-07	3E-04	4E-05	3E-04
	Total Risk:	8E-06	1E-03	2E-04	2E-03
	Total HI:	3.5E-02	1.7E+01	1.8E+01	3.5E+01
Northwest Area	Radionuclide Risk:	6E-07	2E-05	1E-05	3E-05
	Chemical Risk:	3E-07	3E-06	5E-06	8E-06
	Total Risk:	9E-07	2E-05	2E-05	4E-05
	Total HI:	1.3E-02	3.4E+00	6.9E-01	4.1E+00
Northeast Area	Radionuclide Risk:	3E-06	7E-04	9E-05	8E-04
	Chemical Risk:	1E-07	5E-05	2E-05	7E-05
	Total Risk:	4E-06	8E-04	1E-04	9E-04
	Total HI:	2.0E-02	1.0E+01	1.1E+01	2.1E+01
Southeast Area	Radionuclide Risk:	2E-06	1E-05	6E-04	6E-04
	Chemical Risk:	3E-08	2E-06	2E-05	2E-05
	Total Risk:	2E-06	1E-05	6E-04	6E-04
	Total HI:	9.5E-03	3.8E+00	5.1E+01	5.5E+01
Southwest Area	Radionuclide Risk:	2E-06	2E-05	4E-04	4E-04
	Chemical Risk:	3E-08	6E-06	2E-05	3E-05
	Total Risk:	2E-06	3E-05	4E-04	5E-04
	Total HI:	9.9E-03	1.9E+00	3.6E+01	3.8E+01
Waste Pit Area	Radionuclide Risk:	7E-07	8E-04	5E-05	9E-04
	Chemical Risk:	2E-07	1E-04	7E-06	1E-04
	Total Risk:	9E-07	1E-03	5E-05	1E-03
	Total HI:	2.0E-02	3.5E+00	4.2E+00	7.8E+00
Shooting Range	Radionuclide Risk:	2E-06	6E-06	6E-04	6E-04
	Chemical Risk:	4E-08	1E-05	2E-05	4E-05
	Total Risk:	2E-06	2E-05	6E-04	6E-04
	Total HI:	1.3E-02	1.0E+02	5.1E+01	1.5E+02

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TABLE A.5-16
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY CHILD

FUTURE LAND USE, WITHOUT ACCESS CONTROLS (FUTURE AGRICULTURAL USE)

		Air	Soil	Groundwater	Total
Production Area	Radionuclide Risk:	2E-06	1E-03	2E-04	1E-03
	Chemical Risk:	6E-07	3E-03	1E-04	4E-03
	Total Risk:	3E-06	4E-03	3E-04	5E-03
	Total HI:	1.4E-01	1.4E+02	1.2E+02	2.6E+02
Northwest Area	Radionuclide Risk:	2E-07	4E-05	1E-05	5E-05
	Chemical Risk:	2E-06	2E-05	2E-05	5E-05
	Total Risk:	2E-06	6E-05	3E-05	9E-05
	Total HI:	7.2E-02	5.9E+01	6.7E+00	6.5E+01
Northeast Area	Radionuclide Risk:	1E-06	7E-04	9E-05	7E-04
	Chemical Risk:	6E-07	6E-04	7E-05	6E-04
	Total Risk:	2E-06	1E-03	2E-04	1E-03
	Total HI:	8.7E-02	1.4E+02	7.0E+01	2.1E+02
Southeast Area	Radionuclide Risk:	4E-07	3E-05	5E-04	6E-04
	Chemical Risk:	2E-07	2E-05	9E-05	1E-04
	Total Risk:	6E-07	4E-05	6E-04	7E-04
	Total HI:	3.6E-02	7.2E+01	3.2E+02	3.9E+02
Southwest Area	Radionuclide Risk:	5E-07	4E-05	4E-04	4E-04
	Chemical Risk:	2E-07	6E-05	8E-05	1E-04
	Total Risk:	6E-07	1E-04	5E-04	6E-04
	Total HI:	3.7E-02	2.4E+01	2.2E+02	2.5E+02
Waste Pit Area	Radionuclide Risk:	2E-07	8E-04	5E-05	8E-04
	Chemical Risk:	1E-06	1E-03	3E-05	1E-03
	Total Risk:	1E-06	2E-03	7E-05	2E-03
	Total HI:	7.5E-02	5.4E+01	3.1E+01	8.5E+01
Shooting Range	Radionuclide Risk:	4E-07	2E-05	5E-04	6E-04
	Chemical Risk:	2E-07	8E-05	9E-05	2E-04
	Total Risk:	6E-07	1E-04	6E-04	7E-04
	Total HI:	4.9E-02	5.0E+02	3.2E+02	8.1E+02

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TABLE A.5-17
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RME FARMER, USE OF PERCHED GROUNDWATER

FUTURE LAND USE, WITHOUT ACCESS CONTROLS (FUTURE AGRICULTURAL USE)

		Air	Soil	Perched Groundwater	GMA Groundwater	Total
Production Area	Radionuclide Risk:	1E-04	1E-02	3E-02	6E-04	4E-02
	Chemical Risk:	2E-06	6E-03	1E-02	1E-04	2E-02
	Total Risk:	1E-04	2E-02	4E-02	8E-04	6E-02
	Total HI:	6.7E-02	4.6E+01	1.4E+03	8.6E+00	1.5E+03

TABLE A.5-18
SUMMARY OF CANCER RISKS AND HAZARD QUOTIENTS FOR HOME BUILDER

FUTURE LAND USE, WITHOUT ACCESS CONTROLS (AGRICULTURAL USE)

		Air	Soil	TOTAL
Production Area	Radionuclide Risk:	3E-06	4E-05	4E-05
	Chemical Risk:	2E-08	5E-06	5E-06
	Total Risk:	3E-06	4E-05	4E-05
	Total HI:	1.1E-01	3.2E+00	3.3E+00
Northwest Area	Radionuclide Risk:	2E-07	3E-07	5E-07
	Chemical Risk:	7E-09	7E-07	7E-07
	Total Risk:	2E-07	1E-06	1E-06
	Total HI:	1.1E-01	3.2E+00	3.3E+00
Northeast Area	Radionuclide Risk:	1E-06	2E-05	3E-05
	Chemical Risk:	9E-09	2E-05	2E-05
	Total Risk:	1E-06	5E-05	5E-05
	Total HI:	1.1E-01	3.2E+00	3.3E+00
Southeast Area	Radionuclide Risk:	7E-07	2E-07	9E-07
	Chemical Risk:	4E-09	6E-07	6E-07
	Total Risk:	7E-07	8E-07	1E-06
	Total HI:	6.0E-02	6.3E-01	6.9E-01
Southwest Area	Radionuclide Risk:	7E-07	5E-07	1E-06
	Chemical Risk:	4E-09	7E-07	8E-07
	Total Risk:	7E-07	1E-06	2E-06
	Total HI:	6.2E-02	1.1E+00	1.2E+00
Waste Pit Area	Radionuclide Risk:	3E-07	3E-05	3E-05
	Chemical Risk:	1E-08	1E-05	1E-05
	Total Risk:	3E-07	4E-05	4E-05
	Total HI:	1.3E-01	3.3E+00	3.4E+00
Shooting Range	Radionuclide Risk:	7E-07	9E-08	8E-07
	Chemical Risk:	6E-09	1E-06	1E-06
	Total Risk:	7E-07	1E-06	2E-06
	Total HI:	8.6E-02	1.6E+00	1.7E+00

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TABLE A.5-19
SUMMARY OF CANCER RISKS FROM AIR PATHWAY FOR SENSITIVE SUBPOPULATIONS: GRADE AND HIGH SCHOOL STUDENTS

Constituents	Crosby School	Morgan School	Elda School	St. John's School	Ross Middle High School
RADIONUCLIDES					
Cs_{137+1d}	2.5E-16	1.3E-16	3.1E-16	2.3E-16	1.2E-16
Np_{237+1d}	1.0E-13	2.7E-14	1.1E-13	6.9E-14	4.2E-14
Pu_{238}	4.0E-12	7.4E-13	3.9E-12	2.3E-12	1.4E-12
$Pu_{239/240}$	5.6E-13	1.0E-13	5.7E-13	3.4E-13	2.1E-13
Ra_{226+5d}	8.9E-12	3.5E-13	1.3E-11	4.8E-12	4.3E-12
Ra_{228+1d}	5.9E-13	2.0E-14	7.1E-13	3.0E-13	2.3E-13
Ru_{106}	3.0E-15	1.0E-16	2.5E-15	1.2E-15	8.9E-16
Sr_{90+1d}	1.3E-15	4.3E-17	1.5E-15	6.3E-16	5.0E-16
Tc_{99}	1.8E-15	5.8E-16	2.5E-15	1.4E-15	9.0E-16
Th_{228+7d}	2.3E-11	1.1E-11	2.9E-11	2.1E-11	1.1E-11
Th_{230}	2.2E-10	8.6E-12	3.0E-10	1.2E-10	9.7E-11
Th_{232}	1.4E-11	4.6E-12	1.7E-11	1.1E-11	6.4E-12
U_{234}	2.7E-10	2.0E-11	2.9E-10	1.4E-10	9.6E-11
$U_{235/236}$	2.3E-11	3.1E-12	2.4E-11	1.3E-11	8.4E-12
U_{238+2d}	6.6E-10	1.4E-10	7.0E-10	4.2E-10	2.5E-10
Rn_{222+4d}	3.4E-09	1.6E-09	8.9E-09	3.4E-09	2.6E-09
TOTAL RAD RISK:	4.7E-09	1.8E-09	1.0E-08	4.1E-09	3.1E-09
CHEMICALS					
arsenic	1.2E-10	4.3E-12	1.0E-10	4.7E-11	3.5E-11
beryllium	6.1E-12	2.1E-13	5.9E-12	2.7E-12	2.0E-12
cadmium	1.9E-11	7.3E-13	1.8E-11	8.0E-12	6.2E-12
chromium vi	5.3E-10	1.9E-11	5.3E-10	2.4E-10	1.8E-10
nickel	1.3E-11	4.7E-13	1.2E-11	5.7E-12	4.3E-12
benzene	1.3E-19	3.1E-20	3.0E-19	1.1E-19	8.5E-20
chloroform	1.9E-18	8.5E-20	4.3E-18	1.6E-18	1.2E-18
methylene chloride	8.4E-18	1.7E-21	1.7E-17	8.4E-18	3.8E-18
tetrachloroethene	1.1E-11	2.1E-21	1.3E-11	5.1E-12	4.1E-12
trichloroethene	6.3E-11	6.3E-21	7.6E-11	3.0E-11	2.5E-11
benzo(a)anthracene	1.7E-14	9.4E-19	3.5E-14	1.6E-14	9.2E-15
benzo(a)pyrene	1.3E-13	6.4E-18	2.8E-13	1.3E-13	7.4E-14
benzo(b)fluoranthene	1.6E-14	7.9E-19	3.2E-14	1.3E-14	9.1E-15
benzo(k)fluoranthene	6.7E-15	3.4E-19	1.4E-14	6.1E-15	3.7E-15
chrysene	1.0E-16	6.4E-21	2.1E-16	9.0E-17	6.0E-17
dibenzo(a,h)anthracene	4.3E-14	6.4E-18	9.0E-14	4.0E-14	2.4E-14
dieldrin	2.7E-16	1.7E-17	4.4E-16	2.2E-16	1.3E-16
indeno(1,2,3-cd)pyrene	2.1E-14	1.8E-18	4.5E-14	2.0E-14	1.3E-14
bis(2-ethylhexyl)phthalate	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
octachlorodibenzo-p-dioxin	3.5E-16	1.6E-16	5.7E-16	2.5E-16	1.8E-16
octachlorodibenzofuran	1.6E-16	1.6E-16	3.8E-16	1.4E-16	1.1E-16
chlorodane	1.8E-17	1.4E-18	2.6E-17	1.3E-17	7.9E-18
aroclor-1254	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
aroclor-1260	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
4,4-dde	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
4,4-ddt	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
carbazole	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
n-nitrosodipropylamine	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
n-nitrosodiphenylamine	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL CHEM RISK:	7.6E-10	2.5E-11	7.6E-10	3.4E-10	2.6E-10
TOTAL RISK:	5.4E-09	1.8E-09	1.1E-08	4.5E-09	3.3E-09

TABLE A.5-20
SUMMARY OF HAZARD QUOTIENTS FROM AIR PATHWAY TO CRITICAL SUBPOPULATIONS

Constituents	Crosby School	Morgan School	Elda School	St. John's School	Ross Middle High School
TOXICANTS					
aluminum	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
antimony	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
arsenic	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
barium	5.0E-06	1.7E-07	4.8E-06	2.2E-06	3.7E-06
beryllium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
cadmium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
chromium vi	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
cobalt	1.7E-04	6.3E-06	1.7E-04	7.6E-05	1.3E-04
copper	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
cyanide	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
lead	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
magnesium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
manganese	3.7E-04	1.3E-05	3.5E-04	1.6E-04	2.7E-04
mercury	2.3E-08	7.8E-10	2.4E-08	1.1E-08	1.8E-08
molybdenum	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
nickel	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
selenium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
silver	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
thallium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
vanadium	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
zinc	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
uranium-total	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
chloroform	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
methylene chloride	4.8E-14	9.6E-18	9.6E-14	4.8E-14	4.9E-14
tetrachloroethene	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
bis(2-ethylhexyl)phthalate	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
chlorodane	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
dieldrin	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
4,4-ddt	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL HAZARD INDEX	5.5E-04	2.0E-05	5.2E-04	2.4E-04	4.0E-04

A.6.0 UNCERTAINTIES

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The types and magnitudes of uncertainties associated with each stage of the process are of major importance for risk assessments at the Fernald Environmental Management Project (FEMP). Uncertainties associated with calculations that occur in the early stages of the process become magnified as the results of the calculations are used in the later stages of the process. It is not possible to eliminate all uncertainty from the analysis. This section presents an analysis of the potential impacts of major uncertainties contributing to the overall uncertainty of the Operable Unit 5 baseline risk assessment.

A.6.1 TERMINOLOGY

This section briefly introduces the evaluation of uncertainties inherent in the risk assessment process. Uncertainty is a factor in each step of the exposure and toxicity assessments presented in the preceding sections. Such uncertainty can involve variations in sample analytical results, the values of variables used as input to a given model, the accuracy with which the model itself represents actual environmental processes, the manner in which the exposure scenario is developed, and the high-to-low dose and interspecies extrapolations for dose-response relationships. Each of these categories of potential uncertainty is discussed in this section.

Generally, risk assessments carry two types of uncertainty and each merits consideration. Measurement uncertainty refers to the usual variance that accompanies scientific measurements (e.g., instrument uncertainty associated with contaminant concentrations, the number of samples collected, etc.). The results of the risk assessment reflect the accumulated variances of the individually measured values used to develop it. Another type of uncertainty stems from inadequate data information needed to complete the toxicity and risk assessment. Often this gap is significant, such as the absence of information on the effects of human exposure to a chemical or on the biological mechanism of action of an agent (EPA 1992d).

Once the risk assessment is completed, its results must be reviewed and evaluated to identify the type and degree of uncertainty involved. The results of the uncertainty evaluation should then be considered when using the risk assessment results for remedial decision making.

Reliance on a simplified numerical presentation without consideration of uncertainties, limitations, and assumptions inherent in the risk assessment process can often be misleading. For example, a small impact of 10^{-6} lifetime risk of cancer may be calculated for an individual from exposure to a particular source of contamination. However, if the uncertainty in this number is several orders of magnitude, the real risk from this source of contamination may in fact be higher than the risk from another contaminated source that has a calculated risk of 10^{-4} lifetime risk of cancer but has a small degree of uncertainty.

Alternatively, an upper bound risk of 10^{-2} lifetime risk may be calculated and appear to represent an unacceptable risk. However, the actual risk may be one, two, or even three orders of magnitude smaller. This situation often occurs when the estimated risk reflects limited information and uncertainty in the calculational parameters, conservative assumptions on lifestyles and land-use scenarios, and maximum or near-maximum values for almost all modeling and exposure variables to ensure that the risks are not underestimated. Health risk assessments for the reasonable maximum exposure (RME) individuals for Operable Unit 5 have been based on such conservatism. Although it is possible that such an exposure, dose, or sensitivity combination might occur in a given population of interest, the probability of an individual actually being exposed to this combination of events and conditions is usually small, and often so small that such a combination will not occur in an actual receptor population. For example if the UCL values for all parameters are used to model an intake, the results will yield a value which may lie at the 99th percentile. The calculated risk for the RME individual in a Superfund risk assessment is therefore greater than the highest value of the range of actual expected risk, and not within it. Characterization of risk based on overly conservative model parameters, scenarios, and assumptions does not convey the "real world" information and is often misleading. A risk estimate for an RME individual in a Superfund risk assessment has been frequently mistakenly viewed as an average risk to all individuals (EPA 1992d).

Recent U.S. Environmental Protection Agency (EPA) guidance on risk assessment (EPA 1992d) urges risk assessors to address or provide descriptions of individual risk to include both the "high end" portions and "central tendency" of the risk distribution. This corresponds to the reasonable conservatism and nonconservatism, respectively, of the scenarios for the risk assessment. The high end of the risk distribution is, conceptually, above the 90th percentile of the actual (either measured or estimated) distribution, but not higher than the risk to an individual in the population who has the highest risk. If only limited information on the distribution of the exposure or dose factors is

available, the assessor should approach estimating the high end risk by identifying the most sensitive parameters and using maximum or near-maximum values for one or a few of these variables, leaving others at their mean values (EPA 1992c). The risk descriptor addressing central tendency may be either the arithmetic mean risk ("average estimate") or the median risk ("median estimate"). The average and median estimates can be derived by using average and median values, respectively, for all of the factors in the risk assessment (EPA 1992c).

The ultimate goal of the risk assessment process is to provide an objective, realistic, and balanced risk estimate for risk management decisions. Until recently, Superfund risk assessments based on the "Risk Assessment Guidance for Superfund" (EPA 1989a) yielded calculated risks only for RME individuals, with risk estimates actually exceeding the high end risk.

In an attempt to incorporate the new concepts of average and median estimates for health risk calculations, the risk assessment for Operable Unit 5 includes a scenario considering average central tendency lifestyle conditions (e.g., average duration/frequency of exposure) for on-property residents. Based on the future land-use scenario, on-property residents constitute the most important subgroup for exposures. This attempt at characterizing risk, based on the new EPA risk assessment methods, serves to present a more realistic estimate of risk for the on-property receptor within the range of different exposure conditions. Efforts will continue to incorporate the guidance as more exposure data at the FEMP become available and additional guidance on estimating central tendency is completed by EPA.

A.6.2 SOURCES OF UNCERTAINTY IN OPERABLE UNIT 5

As noted previously, uncertainties are associated with the information and data used in each phase of the Operable Unit 5 baseline risk assessment. These uncertainties are the result of a number of factors, including limited data for certain media, the conservative bias of parameters, parameter variability (random errors or natural variations), and the necessity of using computer models to predict complex environmental interactions. EPA has pointed out in their guidance for human health risk assessments that, "It is more important to identify the key site-related variables and assumptions that contribute most to the uncertainty, than to precisely quantify the degree of uncertainty in the risk assessment" (EPA 1989a). Uncertainties associated with information and data are evaluated in this section to provide the spectrum of information needed in regard to the overall quality of the risk assessment results.

A.6.2.1 Adequacy of the Database

The database used for assessing risk can contribute a large degree of uncertainty to the selection of constituents of potential concern and the development of exposure point concentrations. The adequacy of a database depends upon a sufficient number of samples. As mentioned earlier, parameters from the high end (above the 90th percentile of the mean) of a distribution are used in the calculation of risk. The 95th percentile, from an inadequate database (i.e. one consisting of too few samples) will result in a value which often represents the maximum value detected. The locations sampled in such a database may also be very limited, yielding biased results.

Overall the databases used for soil and groundwater are adequate for risk assessment purposes. However, for sediment and surface waters at some locations, the exposure point concentrations were derived from relatively few samples. Hence, in such circumstances, the maximum values were used. Therefore the probability of underestimating risk due to an inadequate database is low.

A.6.2.2 Selection of Constituents of Potential Concern

Uncertainty associated with the selection process used to determine the constituents of potential concern (CPCs) in Operable Unit 5 can be attributed to the following sources:

- Evaluation of the existing data raises the question as to whether all pockets of elevated contamination have been identified. In general, it is believed that they have been identified for most radionuclides at the FEMP because most sampling locations were generally biased, based on radiological field screening. This is particularly important because risks from radionuclides dominate the overall risks to all receptors evaluated in this risk assessment.

- Sample analytical techniques produce results that have an unknown degree of uncertainty associated with them. These uncertainties are documented by using data qualifiers to reflect the assumed degree of certainty of measurement. These analytical uncertainties affect the selection of CPCs or the calculation of exposure point concentrations (either measured or modeled) that may be based on a particular analytical result.

- A limited number of samples exist for some media types due to the problems encountered when attempting to obtain representative samples from an area as large as Operable Unit 5. A limited database has the potential to introduce either false positive results by introducing constituents as CPCs that are not site-related, or false negative results by eliminating compounds that may be legitimate CPCs because they are site-related and could contribute to site risks. While the quantity of analytical samples in Operable Unit 5's database is considerable, the vast area covered precludes media characterization that could be considered as truly "representative" for all areas.

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- Chemical concentrations are compared to background concentrations to determine if they are elevated. Some groundwater samples used to determine background have high detection limits. A chemical that was not detected during background sampling may force a comparison with an assumed value (either one-half the detection limit or zero). This could result in erroneously including or excluding a chemical from those selected for further evaluation.

- The Operable Unit 5 baseline risk assessment presented in this document uses validated data, only, to calculate risks presented in the risk characterization. However, it should be noted that the on-site monitoring lab was used to a large extent to characterize subsurface soil contamination, particularly in the former Production Area. Much of the data generated by the on-site monitoring lab cannot be validated to CERCLA standards. However, the inclusion of this data may enhance the risk evaluation of the subsurface soils in the former Production Area. For purposes of comparison and completeness, this report includes a risk evaluation of the soil and groundwater data generated by the onsite monitoring lab under the RI/FS sampling programs.

- Conservatively, magnesium was selected as a constituent of potential concern. Magnesium compounds were used extensively in production activities at the site. Magnesium was detected in soil samples from several study areas at concentrations exceeding background. However, magnesium is also an essential element.

- The analytical results for several inorganics present concentrations for total metals. These results do not reflect the speciation of those constituents. Analysis of the speciation of metals is costly and requires special laboratory procedures and very short holding times. Without site-specific information on the percentage of speciation, the assumption that 100% of the inorganic constituent's concentration is attributed to its most toxic form is used for conservatism. For example, the Operable Unit 5 baseline risk assessment assumes that all detected cyanide is in its most toxic valence state. In actuality, most of the cyanide found in the environment is bound as iron-cyanide complexes. The toxicity of cyanide is dependent upon its ability to disassociate. Likewise for chromium , it was assumed that its entire concentration exists in its highly toxic hexavalent state. The FEMP now has data indicating that approximately only 1.5 to 2.0 percent of all chromium detected represents hexavalent chromium. The remaining amount exists in the low toxic trivalent state. The results of this assumption is an overestimation of risk from those constituents.

- The CPC selection process tends to include all constituents with dose-response data. CPCs were screened out only if the maximum concentration for a media was less than a toxicity screening value. Therefore, toxicity screening is intended to retain all constituents that have potential for risk. The resulting probability of underestimating risk based on CPC selection is assumed low.

The cumulative impacts of these uncertainties on the results of the exposure and risk assessments are judged to be minor. This is because the majority of the risk for most receptors is attributable to exposures to uranium, thorium, and radium and their progeny in the surface soils of Operable Unit 5. The relative contribution from this group of radionuclides to the total risk is so great in most

instances that the total risk would not change significantly if most of the other constituents were added or deleted from the list of constituents selected for evaluation in this risk assessment.

A.6.2.3 Exposure Point Concentrations

Uncertainty associated with the exposure point concentrations in Operable Unit 5 can be attributed to the following sources:

- A few elevated concentrations of arsenic in groundwater were detected in a few samples in wells upgradient of the site, along the northern border, and at a well south of the site. These concentrations present a potential risk approaching 10^{-2}. These elevated levels of arsenic were also detected in background samples, ranging from .018 mg/L to 0.55 mg/L, which includes the range of sample concentrations detected in site wells. However, the contamination profile for arsenic does not demonstrate a pattern (ie. a contaminated plume). Therefore, although risk from arsenic appears high, it ranges within background levels. The data indicates that these levels are likely to be naturally occurring.

- Phthalates were detected in surface water from both Paddys Run and the Great Miami River. However, phthalates are common laboratory contaminants related to plastics. Although the concentrations detected are not considered representative of actual contamination, insufficient quality control data were available to eliminate the data from the database during data validation.

- In an effort to obtain radiological samples at the most contaminated locations, a radiological survey of the study area was conducted. Sampling locations were often located in areas having the highest gross radiation measurements. Selection of sampling locations in this way leads to a positive bias for certain radionuclides and uncertainty in the representativeness of the samples.

- Evaluation of the existing data raises the question as to whether all pockets of elevated contamination have been identified. In general, it is believed that they have been identified for most radionuclides at the FEMP because sampling locations were often biased, based on field screening. This is particularly important because risks from radionuclides dominate the overall risks to most receptors evaluated in this risk assessment.

- Sample analytical techniques produce results that have a degree of uncertainty associated with them. These uncertainties are documented by using data qualifiers to reflect the degree of certainty of measurement. These analytical uncertainties affect the exposure point concentrations (either measured or modeled) that may be based on a particular analytical result.

- According to the "Risk Assessment Guidance for Superfund" (EPA 1989a), the upper confidence limits (UCLs) are used for all exposure concentrations. This means that 95 percent of the time, the actual mean concentration can be less than the value used in the exposure assessment. Conversely, 5 percent of the time the actual mean concentration can be greater than the value used in the exposure assessment. Therefore the exposure assessment may underestimate the exposures in 5 percent of the cases, and overestimate exposures 95 percent of the time.

- There is also great overestimation in the final exposure concentrations used in that many were based on the maximum detected concentration. The conservative approach is taken in the statistical interpretation of the RI/FS and other databases used for risk assessment purposes. If there are less than seven detections, the maximum concentration is used as the representative concentration. This technique may result in an overestimation of the concentrations to which a receptor could be exposed. (For example, the risks associated with technetium-99 in grazing area No. 1 are based on one positive detection in available RI/FS samples for grazing area No. 1.)

Predicted concentrations were used as exposure point concentrations when measured data were not available (e.g., the future). These predictions were made using mathematical representations (models) of the natural systems found or suspected to exist in the study area. Due to the complexity of natural environments, simplifying assumptions are used to develop these modeled concentrations. Each assumption carries with it a level of uncertainty. To avoid underestimating the concentrations of contaminants in transport media (e.g., air and groundwater), transport parameters are chosen to calculate the upper bound of possible exposure point concentrations. Uncertainties associated with modeled concentrations are generally much larger than those associated with measured data. Specific uncertainties associated with modeled exposure point concentrations in Operable Unit 5 can be attributed to the following sources:

- Section 5.0 and Appendix F discuss fate and transport modeling and its associated uncertainties.

- The selection of parameters related to the attenuation and retardation of constituents is a major uncertainty in the analysis. The attenuation and retardation factors of every constituent except uranium were determined after an extensive literature search. However, the actual retardation factors at the FEMP may not follow the assumed literature values, particularly over the long term. Deviations from assumed literature values based on site-specific conditions may affect contaminant fate predictions.

- Use of non-filtered (or a higher value between filtered and non-filtered) groundwater samples for model calibration and determination of initial conditions.

- The organic decay rates at the FEMP were determined after an extensive literature search. The actual decay rates may or may not follow the assumed literature values because of site-specific conditions. Deviations from assumed literature values may alter contaminant fate predictions.

- Vertical transport of CPCs through the vadose zone is approximated by using a model and assuming the zone is homogeneous. The unsaturated seepage flow rate is a function of several parameters such as porosity, residual saturation, and pore size distribution index. Due to the heterogeneous nature of the till, these parameters change depending on location and depth.

- The total mass of each contaminant was calculated by multiplying the UCL by the volume of the impacted media, making the assumption that the UCL concentration is uniformly distributed through the entire source.

- Air modeling assumed that there was vegetative cover on Operable Unit 5 soil consistent with agricultural land surrounding the FEMP (85% vegetated for current conditions and 50% for future agricultural conditions).

These uncertainties collectively tend to overestimate the concentrations expected in groundwater and from aerial deposition. The use of these modeled concentrations may result in risk one or two orders of magnitude larger than would actually occur.

Models were also used to calculate chemical concentrations in plants and animals. Each time concentrations at one level in the food chain are extrapolated from a lower level, uncertainty is introduced into the result. For example, soil-to-plant transfer factors (B_{iv} values) generally represent the maximum amount of contaminant transfer that can occur. In reality, the contaminant transfer is quite dependent on the metal species, in the same way that soil sorption is dependent on metal solubility.

A.6.2.4 Selection of Receptors

The receptors selected for evaluation in this assessment generally reflect and encompass those types of activities which can define the RME individual. Some of these receptors, such as the on-property farmer living in the former production area, may possibly exist in the future but do not represent probable receptors. Risks to such a receptor may overstate risk from the property when considered against more plausible land-use alternatives.

A.6.2.4 Selection of Exposure Factors

Each exposure factor selected for use in this risk assessment has some uncertainty associated with it. Generally these factors are based on surveys of physiological and lifestyle profiles across the United States. The attributes and activities studied in these surveys generally have a broad distribution. To avoid the underestimation of exposure, this risk assessment follows EPA's recommendation and uses the 95th percentile for most of the exposure factors. In other words, the values used generally represent the habits of a small percentage of the population (usually 5 or 10 percent). For example, receptors are assumed to live at the location of highest concentration for 70 years. It is unlikely that an actual resident would follow this activity pattern. Another example is the evaluation of dermal

exposure to the 95th percentile body surface area on receptors of average body weight. Body surface area and body weight are directly proportional, therefore, this assumption would tend to overestimate risk from dermal absorption.

A major uncertainty associated with predicting future exposures at the FEMP is the future disposition of the property itself. Because it is not possible to accurately predict what the future uses of the land may be, or how much remediation the site may undergo, the most conservative (rather than the most likely) land use is evaluated, as stipulated by the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). As noted in Section A.3.0, one of the on-property residents evaluated under future land use for Operable Unit 5 is the resident farmer. An agricultural receptor is assumed to represent the upper-bound values for the exposure assessment. Comparison of the RME adult to the central tendency adult illustrates the range of uncertainty associated with the application of the future land-use scenario to Operable Unit 5.

A.6.2.6 Toxicity Assessment

Considerable uncertainty is associated with the qualitative (hazard assessment) and quantitative (dose-response) evaluations of a CERCLA risk assessment. The hazard assessment deals with characterizing the nature and strength of the evidence of causation, or the likelihood that a chemical that induces adverse effects in animals will induce adverse effects in humans.

Hazard assessment of carcinogenicity is evaluated as a weight-of-evidence determination, using either the IARC (1987) or EPA (1986b) guidance. Positive animal cancer test data suggest that humans contain tissue(s) that may be provoked into a carcinogenic response; however, the animal data cannot necessarily be used to predict the target tissue in humans. In the hazard assessment of noncancer effects positive animal data suggest the nature of the effects (i.e., the target tissues and type of effects) anticipated in humans (EPA 1989i).

Uncertainty in hazard assessment arises from the nature and quality (sensitivity and selectivity) of the animal and human data. Uncertainty is decreased when similar effects are observed across species, strain, sex, and exposure route; when the magnitude of the response is clearly dose-related; when pharmacokinetic data indicate a similar fate in animals and humans; when postulated mechanisms of toxicity are similar for humans and animals; and when the CPC is structurally similar to other chemicals for which the toxicity is more completely characterized. A unique source of uncertainty in

cancer hazard assessment involves the relevance of liver tumors in strains of mice with a high background incidence, especially when these tumors provide the only positive response (Scala 1991). Many chlorinated organic chemicals in EPA cancer weight-of-evidence Group B2 fall into this category.

There are many sources of uncertainty in the dose-response evaluation for cancer (i.e., computation of a slope factor or unit risk) and noncancer effects (i.e., computation of an RfD or RfC). First is the uncertainty regarding interspecies (animal-to-human) extrapolation, which, in the absence of quantitative pharmacokinetic, dosimetric, or mechanistic data, is usually based on consideration of interspecies differences in basal metabolic rate. Second is the uncertainty regarding intraspecies, or individual, variation. Most toxicity experiments are performed with animals that are very similar in age and genotype, so that intragroup biological variation is minimal, but the human population of concern may reflect a great deal of heterogeneity including unusual sensitivity to the CPC. Even toxicity data from human occupational exposure reflect a bias because only those individuals sufficiently healthy to attend work regularly, and those not unusually sensitive to the CPC, are likely to be occupationally exposed. Third, uncertainty arises from the quality of the key study (from which the quantitative estimate is derived) and the database. For cancer effects, the uncertainty associated with some quality factors (e.g., group size) is expressed within the 95 percent upper bound of the slope factor. For noncancer effects additional uncertainty factors may be applied in the derivation of the RfD or RfC to reflect poor quality of the key study, or gaps in the database.

Another source of uncertainty regarding quantitative risk estimation for carcinogenicity is the method by which data from high doses in animal studies are extrapolated to the dose range expected for environmentally exposed humans. The linearized multistage model, which is used in nearly all quantitative estimations of human risk from animal data, is based on a nonthreshold assumption of carcinogenesis. An impressive body of evidence, however, suggests that epigenetic carcinogens, as well as many genotoxic carcinogens, have a threshold below which they are noncarcinogenic (Williams and Weisburger 1991); therefore, the use of the linearized multistage model is conservative for chemicals that exhibit a threshold for carcinogenicity.

A further source of uncertainty for noncancer effects arises from use of an effect level in the estimation of an RfD or RfC, because this estimation is predicated on the assumption of a threshold below which adverse effects are not expected. Therefore, an additional uncertainty factor is usually

applied to estimate a no-effect level. Additional uncertainty arises from estimation of an RfD or RfC for chronic exposure utilizing less than chronic data. Unless empirical data indicate that effects do not worsen with increasing duration of exposure, an additional uncertainty factor is applied to the no-effect level in the less than chronic study.

As an example of this type of uncertainty, consider the toxicity information for uranium. Uranium as an alpha particle emitter is also considered a carcinogen. However, epidemiological evidence of uranium-induced excess cancer risks are very difficult to obtain. This is because the data available for radiocarcinogenic effects of uranium exposure for humans are for underground miners, who are also simultaneously exposed to radon and radon progeny as a confounding factor. The studies of humans sometimes lack information concerning uranium exposure, potential uranium exposure through previous employment, concurrent smoking patterns, or concurrent radon exposure levels that are needed to more definitively determine the risk attributable to uranium exposure. The human studies of cancer from exposure to uranium frequently reveal a slight excess risk (if any) above the natural risk. These facts weaken the power of the human studies to detect any excess risk. These uncertainties are not well known or easily determined.

The toxicity information used in the Operable Unit 5 assessment also introduces the following sources of uncertainty:

- Polynuclear aromatic hydrocarbons (PAHs) for which no toxicity data are available are evaluated using benzo(a)pyrene toxicity data. This assumption likely leads to an overestimation of the carcinogenicity of those PAHs (benzo[b]fluoranthene, benzo[a]anthracene, and chrysene). This increased conservatism, however, does not significantly impact the overall risks from Operable Unit 5.

- The use of a relative slope factor (or toxicity equivalent factor) approach should provide a more reasonable assessment of the potential carcinogenic effects of PAHs. However, there are no values that have gained agency-wide acceptance. The toxicity equivalency factors (TEFs) presented in this assessment may either underestimate or overestimate the carcinogenic risks.

- The carcinogenicity of all polychlorinated biphenyl (PCB) isomers are assumed to be equal to the carcinogenicity of Aroclor-1260 because dose-response data for other isomers are inconclusive. The only PCB with positive carcinogenicity results is Aroclor-1260. Statistically significant cancer results were not seen for Aroclors with lower percentages of chlorination.

- The carcinogenicity of dioxins and furans other than the 2,3,7,8-isomer are determined using EPA's revised TEFs in the absence of toxicity values for the different isomers (EPA

1990d). The TEFs are based on the assumption that all dioxin and furan congeners are carcinogenic. This may introduce a large bias to the results of the assessment.

A significant source of uncertainty for calculating risks from radionuclides in surface soil is the use of EPA slope factors for external radiation exposure. In deriving these slope factors, EPA has assumed that an individual continuously stands on an infinitely thick slab of soil with a uniform radionuclide concentration. To manage complicated calculations for photon attenuation and scattering in soil, EPA has assumed that the activity in the slab source is present on an infinite plane with uniform surface concentration. The slope factors for external radiation exposure are, therefore, based on calculated exposures (and associated risks of cancer incidence) from the hypothetical plane source.

In addition, EPA calculates slope factors for ingestion of many radionuclides using the maximum value for the gastrointestinal (GI) absorption factor. The actual chemical form(s) that influence the magnitude of this absorption factor have not been considered.

A.6.2.7 Risk Characterization

The additivity of risks from radionuclides and chemical carcinogens is the subject of considerable debate. EPA guidance (EPA 1989a) indicates that the two sets of estimates be considered separately because chemical cancer slope factors (CSFs) are developed using laboratory experiments and radionuclide toxicity values are based on human epidemiological data. Chemical CSFs represent an upper bound limit value while radionuclide slope factors are only best estimates.

A.6.3 SUMMARY OF UNCERTAINTIES IN OPERABLE UNIT 5 BASELINE RISK ASSESSMENT

Uncertainties encountered during the preparation of this assessment are based on the unique considerations inherent in Operable Unit 5. While many of the uncertainties are shared between operable units, others are specific to Operable Unit 5. This is due primarily to the much larger area of Operable Unit 5 and the volume and variety of environmental media evaluated.

Many of the quantities used to calculate exposures and risks in this report are selected from a distribution of possible values. For the RME scenarios, the value representing the 95th percentile is generally selected for each parameter to ensure that the assessment bounds the actual risks from a postulated exposure. This risk number is used in risk management decisions, but does not indicate what a more average exposure might be or what risk range might be expected for individuals in the

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exposed population. To address these issues, a central tendency risk estimate was prepared for the maximally exposed individual using the scenario described in Section A.3.

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TABLE 6-1
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR THE ON-PROPERTY RECEPTORS

CURRENT LAND USE, WITH ACCESS CONTROLS

	Groundskeeper	Visitor	Trespassing Youth
Area 1			
Radionuclide Risk:	7E-05	3E-05	NA
Chemical Risk:	3E-05	4E-09	NA
Total Risk:	1E-04	3E-05	NA
Total HI:	7.8E-01	9.9E-04	NA
Area 2			
Radionuclide Risk:	1E-03	NA	NA
Chemical Risk:	1E-04	NA	NA
Total Risk:	1E-03	NA	NA
Total HI:	4.7E+00	NA	NA
Area 3			
Radionuclide Risk:	4E-04	NA	NA
Chemical Risk:	2E-04	NA	NA
Total Risk:	6E-04	NA	NA
Total HI:	2.9E+00	NA	NA
Area 4			
Radionuclide Risk:	1E-03	NA	NA
Chemical Risk:	1E-05	NA	NA
Total Risk:	1E-03	NA	NA
Total HI:	5.4E+00	NA	NA
Area 5			
Radionuclide Risk:	5E-05	NA	1E-05
Chemical Risk:	5E-06	NA	3E-06
Total Risk:	6E-05	NA	2E-05
Total HI:	3.5E-01	NA	5.8E-01
Area 6			
Radionuclide Risk:	2E-04	NA	4E-05
Chemical Risk:	2E-06	NA	6E-07
Total Risk:	2E-04	NA	4E-05
Total HI:	1.1E+00	NA	1.8E+00
Area 7			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	5E-07	NA	1E-07
Total Risk:	2E-05	NA	5E-06
Total HI:	9.2E-02	NA	1.5E-01
Area 8			
Radionuclide Risk:	9E-06	NA	2E-06
Chemical Risk:	7E-07	NA	2E-07
Total Risk:	1E-05	NA	3E-06
Total HI:	4.6E-02	NA	7.4E-02
Area 9			
Radionuclide Risk:	2E-04	NA	6E-05
Chemical Risk:	2E-06	NA	6E-06
Total Risk:	2E-04	NA	6E-05
Total HI:	1.2E-01	NA	3.0E-01
Area 10			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	3E-06	NA	2E-06
Total Risk:	2E-05	NA	8E-06
Total HI:	8.5E-02	NA	2.6E-01

	Consumer of Meat & Milk Products
Grazing Area 1	
Radionuclide Risk:	2E-04
Chemical Risk:	1E-04
Total Risk:	3E-04
Total HI:	9.8E+00
Grazing Area 2	
Radionuclide Risk:	1E-04
Chemical Risk:	8E-06
Total Risk:	1E-04
Total HI:	7.0E+00
Grazing Area 3	
Radionuclide Risk:	9E-05
Chemical Risk:	4E-05
Total Risk:	1E-04
Total HI:	7.9E+00

NA = not applicable

TABLE 6-2
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR THE ON-PROPERTY RECEPTORS

CURRENT LAND USE, WITHOUT ACCESS CONTROLS

	Groundskeeper	Visitor	Exploring Youth
Area 1			
Radionuclide Risk:	7E-05	3E-05	4E-06
Chemical Risk:	3E-05	4E-09	1E-06
Total Risk:	1E-04	3E-05	5E-06
Total HI:	7.8E-01	9.9E-04	1.7E-01
Area 2			
Radionuclide Risk:	1E-03	5E-04	7E-05
Chemical Risk:	1E-04	5E-09	8E-06
Total Risk:	1E-03	5E-04	8E-05
Total HI:	4.7E+00	1.4E-03	1.1E+00
Area 3			
Radionuclide Risk:	4E-04	1E-04	2E-05
Chemical Risk:	2E-04	5E-09	1E-05
Total Risk:	6E-04	1E-04	3E-05
Total HI:	2.9E+00	1.2E-03	6.6E-01
Area 4			
Radionuclide Risk:	1E-03	4E-04	7E-05
Chemical Risk:	1E-05	6E-09	1E-06
Total Risk:	1E-03	4E-04	7E-05
Total HI:	5.4E+00	1.4E-03	1.5E+00
Area 5			
Radionuclide Risk:	5E-05	NA	1E-05
Chemical Risk:	5E-06	NA	3E-06
Total Risk:	6E-05	NA	2E-05
Total HI:	3.5E-01	NA	5.8E-01
Area 6			
Radionuclide Risk:	2E-04	NA	4E-05
Chemical Risk:	2E-06	NA	6E-07
Total Risk:	2E-04	NA	4E-05
Total HI:	1.1E+00	NA	1.8E+00
Area 7			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	5E-07	NA	1E-07
Total Risk:	2E-05	NA	5E-06
Total HI:	9.2E-02	NA	1.5E-01
Area 8			
Radionuclide Risk:	9E-06	NA	2E-06
Chemical Risk:	7E-07	NA	2E-07
Total Risk:	1E-05	NA	3E-06
Total HI:	4.6E-02	NA	7.4E-02
Area 9			
Radionuclide Risk:	2E-04	NA	6E-05
Chemical Risk:	2E-06	NA	6E-06
Total Risk:	2E-04	NA	6E-05
Total HI:	1.2E-01	NA	3.0E-01
Area 10			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	3E-06	NA	2E-06
Total Risk:	2E-05	NA	8E-06
Total HI:	8.5E-02	NA	2.6E-01
Paddys Run - Off-property			
Radionuclide Risk:	NA	NA	8E-07
Chemical Risk:	NA	NA	6E-07
Total Risk:	NA	NA	1E-06
Total HI:	NA	NA	2.6E+01

	Consumer of Meat & Milk Products
Grazing Area 1	
Radionuclide Risk:	2E-04
Chemical Risk:	1E-04
Total Risk:	3E-04
Total HI:	9.8E+00
Grazing Area 2	
Radionuclide Risk:	1E-04
Chemical Risk:	8E-06
Total Risk:	1E-04
Total HI:	7.0E+00
Grazing Area 3	
Radionuclide Risk:	9E-05
Chemical Risk:	4E-05
Total Risk:	1E-04
Total HI:	7.9E+00
Grazing Area 4	
Radionuclide Risk:	6E-04
Chemical Risk:	1E-02
Total Risk:	1E-02
Total HI:	2.2E+01

NA = not applicable

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TABLE 6-3
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS

CURRENT LAND USE, WITH ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Fenceline					
Radionuclide Risk:	9E-04	1E-04	NA	NA	NA
Chemical Risk:	1E-03	3E-04	NA	NA	NA
Total Risk:	2E-03	3E-04	NA	NA	NA
Total HI:	1.6E+02	4.3E-04	NA	NA	NA
Northern Fenceline					
Radionuclide Risk:	5E-04	5E-05	NA	NA	NA
Chemical Risk:	2E-03	8E-04	NA	NA	NA
Total Risk:	3E-03	8E-04	NA	NA	NA
Total HI:	2.1E+01	1.2E+02	NA	NA	NA
Southern Fenceline					
Radionuclide Risk:	7E-04	7E-05	NA	NA	NA
Chemical Risk:	1E-02	4E-03	NA	NA	NA
Total Risk:	1E-02	4E-03	NA	NA	NA
Total HI:	3.4E+01	1.7E+02	NA	NA	NA
Western Fenceline					
Radionuclide Risk:	6E-04	7E-05	NA	NA	NA
Chemical Risk:	2E-07	9E-08	NA	NA	NA
Total Risk:	6E-04	9E-08	NA	NA	NA
Total HI:	1.0E+01	7.0E-05	NA	NA	NA
Northeast of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.2E+00	2.8E+01	NA	NA	NA
Southeast of FEMP					
Radionuclide Risk:	7E-04	6E-05	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	7E-04	6E-05	NA	NA	NA
Total HI:	1.9E+00	1.1E+01	NA	NA	NA
GMR Outfall Effluent Line					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	1E-03	3E-04	3E-04
Total Risk:	NA	NA	1E-03	3E-04	3E-04
Total HI:	NA	NA	8.6E-01	1.4E+00	2.9E-01
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	5E-04	1E-04	4E-03
Total Risk:	NA	NA	6E-04	1E-04	5E-03
Total HI:	NA	NA	9.2E+00	1.4E+01	2.0E+02

NA = not applicable

TABLE 6-4
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS
CURRENT LAND USE, WITHOUT ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Fenceline					
Radionuclide Risk:	9E-04	1E-04	NA	NA	NA
Chemical Risk:	4E-03	9E-04	NA	NA	NA
Total Risk:	5E-03	9E-04	NA	NA	NA
Total HI:	2.3E+02	9.7E-04	NA	NA	NA
Northern Fenceline					
Radionuclide Risk:	6E-04	5E-05	NA	NA	NA
Chemical Risk:	1E-02	2E-03	NA	NA	NA
Total Risk:	1E-02	2E-03	NA	NA	NA
Total HI:	3.9E+01	1.7E+02	NA	NA	NA
Southern Fenceline					
Radionuclide Risk:	1E-03	8E-05	NA	NA	NA
Chemical Risk:	3E-02	7E-03	NA	NA	NA
Total Risk:	3E-02	7E-03	NA	NA	NA
Total HI:	7.6E+01	2.7E+02	NA	NA	NA
Western Fenceline					
Radionuclide Risk:	7E-04	7E-05	NA	NA	NA
Chemical Risk:	4E-07	1E-07	NA	NA	NA
Total Risk:	7E-04	1E-07	NA	NA	NA
Total HI:	1.1E+01	7.1E-05	NA	NA	NA
Northeast of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.2E+00	2.8E+01	NA	NA	NA
Southeast of FEMP					
Radionuclide Risk:	7E-04	6E-05	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	7E-04	6E-05	NA	NA	NA
Total HI:	2.8E+00	1.3E+01	NA	NA	NA
GMR Outfall Effluent Line					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	1E-03	3E-04	3E-04
Total Risk:	NA	NA	1E-03	3E-04	3E-04
Total HI:	NA	NA	8.6E-01	1.4E+00	2.9E-01
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	5E-04	1E-04	4E-03
Total Risk:	NA	NA	6E-04	1E-04	5E-03
Total HI:	NA	NA	9.2E+00	1.4E+01	2.0E+02

NA = not applicable

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TABLE 6-5
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RECEPTORS

FUTURE LAND USE, WITH ACCESS CONTROLS (GOVERNMENT RESERVE)

			Recreational Receptors		
		Groundskeeper	Developed Park	Undeveloped Park	Wildlife Reserve
Production Area	Radionuclide Risk:	1E-03	4E-04	2E-04	2E-04
	Chemical Risk:	6E-05	3E-05	2E-05	2E-05
	Total Risk:	1E-03	5E-04	2E-04	2E-04
	Total HI:	4.5E+00	9.9E-01	8.5E-01	7.2E-01
Northwest Area	Radionuclide Risk:	2E-05	4E-06	2E-06	2E-06
	Chemical Risk:	5E-06	1E-06	5E-07	4E-07
	Total Risk:	2E-05	6E-06	2E-06	2E-06
	Total HI:	3.7E-01	7.5E-02	6.3E-02	5.3E-02
Northeast Area	Radionuclide Risk:	7E-04	3E-04	1E-04	1E-04
	Chemical Risk:	8E-06	3E-06	2E-06	1E-06
	Total Risk:	7E-04	3E-04	1E-04	1E-04
	Total HI:	1.5E+00	3.3E-01	2.9E-01	2.4E-01
Southeast Area	Radionuclide Risk:	3E-05	5E-05	5E-05	5E-05
	Chemical Risk:	4E-06	6E-06	5E-06	5E-06
	Total Risk:	3E-05	6E-05	6E-05	6E-05
	Total HI:	3.1E-01	1.7E+00	1.6E+00	1.6E+00
Southwest Area	Radionuclide Risk:	4E-05	4E-05	3E-05	3E-05
	Chemical Risk:	6E-06	1E-05	1E-05	1E-05
	Total Risk:	4E-05	5E-05	4E-05	4E-05
	Total HI:	6.5E-01	1.5E+00	1.4E+00	1.4E+00
Waste Pit Area	Radionuclide Risk:	8E-04	4E-04	2E-04	2E-04
	Chemical Risk:	2E-05	1E-05	8E-06	7E-06
	Total Risk:	9E-04	4E-04	2E-04	2E-04
	Total HI:	9.2E-01	7.2E-01	6.9E-01	6.6E-01
Shooting Range	Chemical Risk:	3E-05	3E-06	1E-06	1E-06
	Radionuclide Risk:	1E-05	3E-06	1E-06	1E-06
	Total Risk:	4E-05	6E-06	3E-06	2E-06
	Total HI:	8.1E-01	1.7E-01	1.4E-01	1.2E-01

TABLE 6-6
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RECEPTORS

FUTURE LAND USE - WITHOUT ACCESS CONTROLS (AGRICULTURAL USE)

		On-Property RME Farmer	On-Property CT Farmer	On-Property Child	On-Property RME Farmer (use of perched GW)	Home Builder
Production Area	Radionuclide Risk:	2E-02	1E-03	1E-03	4E-02	4E-05
	Chemical Risk:	7E-03	3E-04	4E-03	2E-02	5E-06
	Total Risk:	2E-02	2E-03	5E-03	6E-02	4E-05
	Total HI:	8.7E+01	3.5E+01	2.6E+02	1.5E+03	3.3E+00
Northwest Area	Radionuclide Risk:	5E-04	3E-05	5E-05	NA	5E-07
	Chemical Risk:	1E-04	8E-06	5E-05	NA	7E-07
	Total Risk:	6E-04	4E-05	9E-05	NA	1E-06
	Total HI:	1.1E+01	4.1E+00	6.5E+01	NA	3.3E+00
Northeast Area	Radionuclide Risk:	1E-02	8E-04	7E-04	NA	3E-05
	Chemical Risk:	1E-03	7E-05	6E-04	NA	2E-05
	Total Risk:	1E-02	9E-04	1E-03	NA	5E-05
	Total HI:	5.3E+01	2.1E+01	2.1E+02	NA	3.3E+00
Southeast Area	Radionuclide Risk:	1E-02	6E-04	6E-04	NA	9E-07
	Chemical Risk:	4E-04	2E-05	1E-04	NA	6E-07
	Total Risk:	1E-02	6E-04	7E-04	NA	1E-06
	Total HI:	1.2E+02	5.5E+01	3.9E+02	NA	6.9E-01
Southwest Area	Radionuclide Risk:	7E-03	4E-04	4E-04	NA	1E-06
	Chemical Risk:	5E-04	3E-05	1E-04	NA	8E-07
	Total Risk:	8E-03	5E-04	6E-04	NA	2E-06
	Total HI:	8.4E+01	3.8E+01	2.5E+02	NA	1.2E+00
Waste Pit Area	Radionuclide Risk:	1E-02	9E-04	8E-04	NA	3E-05
	Chemical Risk:	3E-03	1E-04	1E-03	NA	1E-05
	Total Risk:	1E-02	1E-03	2E-03	NA	4E-05
	Total HI:	1.9E+01	7.8E+00	8.5E+01	NA	3.4E+00
Shooting Range	Chemical Risk:	1E-02	6E-04	6E-04	NA	8E-07
	Radionuclide Risk:	6E-04	4E-05	2E-04	NA	1E-06
	Total Risk:	1E-02	6E-04	7E-04	NA	2E-06
	Total HI:	3.7E+02	1.5E+02	8.1E+02	NA	1.7E+00

NA = not applicable

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TABLE 6-7
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS
FUTURE LAND USE, WITH AND WITHOUT ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Boundary					
Radionuclide Risk:	8E-03	3E-04	NA	NA	NA
Chemical Risk:	9E-05	4E-05	NA	NA	NA
Total Risk:	9E-03	3E-04	NA	NA	NA
Total HI:	4.0E+01	1.6E+02	NA	NA	NA
Northern Boundary					
Radionuclide Risk:	3E-04	3E-05	NA	NA	NA
Chemical Risk:	3E-05	1E-05	NA	NA	NA
Total Risk:	3E-04	4E-05	NA	NA	NA
Total HI:	7.6E+00	4.2E+01	NA	NA	NA
Southern Boundary					
Radionuclide Risk:	2E-03	1E-04	NA	NA	NA
Chemical Risk:	4E-02	9E-03	NA	NA	NA
Total Risk:	4E-02	9E-03	NA	NA	NA
Total HI:	2.6E+01	7.3E+01	NA	NA	NA
Western Boundary					
Radionuclide Risk:	4E-04	5E-05	NA	NA	NA
Chemical Risk:	3E-05	6E-06	NA	NA	NA
Total Risk:	4E-04	5E-05	NA	NA	NA
Total HI:	6.5E-01	2.4E+00	NA	NA	NA
Farm NE of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.3E+00	2.8E+01	NA	NA	NA
Farm SE of FEMP					
Radionuclide Risk:	1E-03	1E-04	NA	NA	NA
Chemical Risk:	1E-02	2E-03	NA	NA	NA
Total Risk:	1E-02	2E-03	NA	NA	NA
Total HI:	1.2E+01	3.4E+01	NA	NA	NA
Farm at Well 2071					
Radionuclide Risk:	2E-05	5E-07	NA	NA	NA
Chemical Risk:	2E-04	5E-05	NA	NA	NA
Total Risk:	2E-04	5E-05	NA	NA	NA
Total HI:	5.1E-02	1.3E-01	NA	NA	NA
Farm at Well 2119					
Radionuclide Risk:	2E-04	1E-05	NA	NA	NA
Chemical Risk:	5E-07	1E-07	NA	NA	NA
Total Risk:	2E-04	1E-05	NA	NA	NA
Total HI:	2.6E+00	7.4E+00	NA	NA	NA
Farm at Well near GMR					
Radionuclide Risk:	1E-04	7E-06	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	1E-04	7E-06	NA	NA	NA
Total HI:	1.5E+00	4.1E+00	NA	NA	NA
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	2E-04	5E-05	1E-05
Chemical Risk:	NA	NA	3E-04	4E-05	1E-04
Total Risk:	NA	NA	5E-04	8E-05	2E-04
Total HI:	NA	NA	1.8E+00	5.3E-01	8.5E-01

NA = not applicable

000336

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TABLE A.7-1
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR THE ON-PROPERTY RECEPTORS

CURRENT LAND USE, WITH ACCESS CONTROLS

	Groundskeeper	Visitor	Trespassing Youth
Area 1			
Radionuclide Risk:	7E-05	3E-05	NA
Chemical Risk:	3E-05	4E-09	NA
Total Risk:	1E-04	3E-05	NA
Total HI:	7.8E-01	9.9E-04	NA
Area 2			
Radionuclide Risk:	1E-03	NA	NA
Chemical Risk:	1E-04	NA	NA
Total Risk:	1E-03	NA	NA
Total HI:	4.7E+00	NA	NA
Area 3			
Radionuclide Risk:	4E-04	NA	NA
Chemical Risk:	2E-04	NA	NA
Total Risk:	6E-04	NA	NA
Total HI:	2.9E+00	NA	NA
Area 4			
Radionuclide Risk:	1E-03	NA	NA
Chemical Risk:	1E-05	NA	NA
Total Risk:	1E-03	NA	NA
Total HI:	5.4E+00	NA	NA
Area 5			
Radionuclide Risk:	5E-05	NA	1E-05
Chemical Risk:	5E-06	NA	3E-06
Total Risk:	6E-05	NA	2E-05
Total HI:	3.5E-01	NA	5.8E-01
Area 6			
Radionuclide Risk:	2E-04	NA	4E-05
Chemical Risk:	2E-06	NA	6E-07
Total Risk:	2E-04	NA	4E-05
Total HI:	1.1E+00	NA	1.8E+00
Area 7			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	5E-07	NA	1E-07
Total Risk:	2E-05	NA	5E-06
Total HI:	9.2E-02	NA	1.5E-01
Area 8			
Radionuclide Risk:	9E-06	NA	2E-06
Chemical Risk:	7E-07	NA	2E-07
Total Risk:	1E-05	NA	3E-06
Total HI:	4.6E-02	NA	7.4E-02
Area 9			
Radionuclide Risk:	2E-04	NA	6E-05
Chemical Risk:	2E-06	NA	6E-06
Total Risk:	2E-04	NA	6E-05
Total HI:	1.2E-01	NA	3.0E-01
Area 10			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	3E-06	NA	2E-06
Total Risk:	2E-05	NA	8E-06
Total HI:	8.5E-02	NA	2.6E-01

NA = not applicable

	Consumer of Meat & Milk Products
Grazing Area 1	
Radionuclide Risk:	2E-04
Chemical Risk:	1E-04
Total Risk:	3E-04
Total HI:	9.8E+00
Grazing Area 2	
Radionuclide Risk:	1E-04
Chemical Risk:	8E-06
Total Risk:	1E-04
Total HI:	7.0E+00
Grazing Area 3	
Radionuclide Risk:	9E-05
Chemical Risk:	4E-05
Total Risk:	1E-04
Total HI:	7.9E+00

000337

TABLE A.7-2
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR THE ON-PROPERTY RECEPTORS

CURRENT LAND USE, WITHOUT ACCESS CONTROLS

	Groundskeeper	Visitor	Exploring Youth
Area 1			
Radionuclide Risk:	7E-05	3E-05	4E-06
Chemical Risk:	3E-05	4E-09	1E-06
Total Risk:	1E-04	3E-05	5E-06
Total HI:	7.8E-01	9.9E-04	1.7E-01
Area 2			
Radionuclide Risk:	1E-03	5E-04	7E-05
Chemical Risk:	1E-04	5E-09	8E-06
Total Risk:	1E-03	5E-04	8E-05
Total HI:	4.7E+00	1.4E-03	1.1E+00
Area 3			
Radionuclide Risk:	4E-04	1E-04	2E-05
Chemical Risk:	2E-04	5E-09	1E-05
Total Risk:	6E-04	1E-04	3E-05
Total HI:	2.9E+00	1.2E-03	6.6E-01
Area 4			
Radionuclide Risk:	1E-03	4E-04	7E-05
Chemical Risk:	1E-05	6E-09	1E-06
Total Risk:	1E-03	4E-04	7E-05
Total HI:	5.4E+00	1.4E-03	1.5E+00
Area 5			
Radionuclide Risk:	5E-05	NA	1E-05
Chemical Risk:	5E-06	NA	3E-06
Total Risk:	6E-05	NA	2E-05
Total HI:	3.5E-01	NA	5.8E-01
Area 6			
Radionuclide Risk:	2E-04	NA	4E-05
Chemical Risk:	2E-06	NA	6E-07
Total Risk:	2E-04	NA	4E-05
Total HI:	1.1E+00	NA	1.8E+00
Area 7			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	5E-07	NA	1E-07
Total Risk:	2E-05	NA	5E-06
Total HI:	9.2E-02	NA	1.5E-01
Area 8			
Radionuclide Risk:	9E-06	NA	2E-06
Chemical Risk:	7E-07	NA	2E-07
Total Risk:	1E-05	NA	3E-06
Total HI:	4.6E-02	NA	7.4E-02
Area 9			
Radionuclide Risk:	2E-04	NA	6E-05
Chemical Risk:	2E-06	NA	6E-06
Total Risk:	2E-04	NA	6E-05
Total HI:	1.2E-01	NA	3.0E-01
Area 10			
Radionuclide Risk:	2E-05	NA	5E-06
Chemical Risk:	3E-06	NA	2E-06
Total Risk:	2E-05	NA	8E-06
Total HI:	8.5E-02	NA	2.6E-01
Paddys Run - Off-property			
Radionuclide Risk:	NA	NA	8E-07
Chemical Risk:	NA	NA	6E-07
Total Risk:	NA	NA	1E-06
Total HI:	NA	NA	2.6E+01

	Consumer of Meat & Milk Products
Grazing Area 1	
Radionuclide Risk:	2E-04
Chemical Risk:	1E-04
Total Risk:	3E-04
Total HI:	9.8E+00
Grazing Area 2	
Radionuclide Risk:	1E-04
Chemical Risk:	8E-06
Total Risk:	1E-04
Total HI:	7.0E+00
Grazing Area 3	
Radionuclide Risk:	9E-05
Chemical Risk:	4E-05
Total Risk:	1E-04
Total HI:	7.9E+00
Grazing Area 4	
Radionuclide Risk:	6E-04
Chemical Risk:	1E-02
Total Risk:	1E-02
Total HI:	2.2E+01

NA = not applicable

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TABLE A.7-3
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS

CURRENT LAND USE, WITH ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Fenceline					
Radionuclide Risk:	9E-04	1E-04	NA	NA	NA
Chemical Risk:	1E-03	3E-04	NA	NA	NA
Total Risk:	2E-03	4E-04	NA	NA	NA
Total HI:	1.6E+02	8.3E+02	NA	NA	NA
Northern Fenceline					
Radionuclide Risk:	5E-04	5E-05	NA	NA	NA
Chemical Risk:	2E-03	8E-04	NA	NA	NA
Total Risk:	3E-03	8E-04	NA	NA	NA
Total HI:	2.1E+01	1.2E+02	NA	NA	NA
Southern Fenceline					
Radionuclide Risk:	7E-04	7E-05	NA	NA	NA
Chemical Risk:	1E-02	4E-03	NA	NA	NA
Total Risk:	1E-02	4E-03	NA	NA	NA
Total HI:	3.4E+01	1.7E+02	NA	NA	NA
Western Fenceline					
Radionuclide Risk:	6E-04	7E-05	NA	NA	NA
Chemical Risk:	2E-07	9E-08	NA	NA	NA
Total Risk:	6E-04	7E-05	NA	NA	NA
Total HI:	1.0E+01	4.3E+01	NA	NA	NA
Northeast of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.2E+00	2.8E+01	NA	NA	NA
Southeast of FEMP					
Radionuclide Risk:	7E-04	6E-05	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	7E-04	6E-05	NA	NA	NA
Total HI:	1.9E+00	1.1E+01	NA	NA	NA
GMR Outfall Effluent Line					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	1E-03	3E-04	3E-04
Total Risk:	NA	NA	1E-03	3E-04	3E-04
Total HI:	NA	NA	8.6E-01	1.4E+00	2.9E-01
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	5E-04	1E-04	4E-03
Total Risk:	NA	NA	6E-04	1E-04	5E-03
Total HI:	NA	NA	9.2E+00	1.4E+01	2.0E+02

NA = not applicable

TABLE A.7-4
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS

CURRENT LAND USE, WITHOUT ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Fenceline					
Radionuclide Risk:	9E-04	1E-04	NA	NA	NA
Chemical Risk:	4E-03	9E-04	NA	NA	NA
Total Risk:	5E-03	1E-03	NA	NA	NA
Total HI:	2.3E+02	9.7E+02	NA	NA	NA
Northern Fenceline					
Radionuclide Risk:	6E-04	5E-05	NA	NA	NA
Chemical Risk:	1E-02	2E-03	NA	NA	NA
Total Risk:	1E-02	2E-03	NA	NA	NA
Total HI:	3.9E+01	1.7E+02	NA	NA	NA
Southern Fenceline					
Radionuclide Risk:	1E-03	8E-05	NA	NA	NA
Chemical Risk:	3E-02	7E-03	NA	NA	NA
Total Risk:	3E-02	7E-03	NA	NA	NA
Total HI:	7.6E+01	2.7E+02	NA	NA	NA
Western Fenceline					
Radionuclide Risk:	7E-04	7E-05	NA	NA	NA
Chemical Risk:	4E-07	1E-07	NA	NA	NA
Total Risk:	7E-04	7E-05	NA	NA	NA
Total HI:	1.1E+01	4.5E+01	NA	NA	NA
Northeast of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.2E+00	2.8E+01	NA	NA	NA
Southeast of FEMP					
Radionuclide Risk:	7E-04	6E-05	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	7E-04	6E-05	NA	NA	NA
Total HI:	2.8E+00	1.3E+01	NA	NA	NA
GMR Outfall Effluent Line					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	1E-03	3E-04	3E-04
Total Risk:	NA	NA	1E-03	3E-04	3E-04
Total HI:	NA	NA	8.6E-01	1.4E+00	2.9E-01
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	4E-05	8E-06	2E-05
Chemical Risk:	NA	NA	5E-04	1E-04	4E-03
Total Risk:	NA	NA	6E-04	1E-04	5E-03
Total HI:	NA	NA	9.2E+00	1.4E+01	2.0E+02

NA = not applicable

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TABLE A.7-5
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RECEPTORS

FUTURE LAND USE, WITH ACCESS CONTROLS (GOVERNMENT RESERVE)

			Recreational Receptors		
		Groundskeeper	Developed Park	Undeveloped Park	Wildlife Reserve
Production Area	Radionuclide Risk:	1E-03	4E-04	2E-04	2E-04
	Chemical Risk:	6E-05	3E-05	2E-05	2E-05
	Total Risk:	1E-03	5E-04	2E-04	2E-04
	Total HI:	4.5E+00	9.9E-01	8.5E-01	7.2E-01
Northwest Area	Radionuclide Risk:	2E-05	4E-06	2E-06	2E-06
	Chemical Risk:	5E-06	1E-06	5E-07	4E-07
	Total Risk:	2E-05	6E-06	2E-06	2E-06
	Total HI:	3.7E-01	7.5E-02	6.3E-02	5.3E-02
Northeast Area	Radionuclide Risk:	7E-04	3E-04	1E-04	1E-04
	Chemical Risk:	8E-06	3E-06	2E-06	1E-06
	Total Risk:	7E-04	3E-04	1E-04	1E-04
	Total HI:	1.5E+00	3.3E-01	2.9E-01	2.4E-01
Southeast Area	Radionuclide Risk:	3E-05	5E-05	5E-05	5E-05
	Chemical Risk:	4E-06	6E-06	5E-06	5E-06
	Total Risk:	3E-05	6E-05	6E-05	6E-05
	Total HI:	3.1E-01	1.7E+00	1.6E+00	1.6E+00
Southwest Area	Radionuclide Risk:	4E-05	4E-05	3E-05	3E-05
	Chemical Risk:	6E-06	1E-05	1E-05	1E-05
	Total Risk:	4E-05	5E-05	4E-05	4E-05
	Total HI:	6.5E-01	1.5E+00	1.4E+00	1.4E+00
Waste Pit Area	Radionuclide Risk:	8E-04	4E-04	2E-04	2E-04
	Chemical Risk:	2E-05	1E-05	8E-06	7E-06
	Total Risk:	9E-04	4E-04	2E-04	2E-04
	Total HI:	9.2E-01	7.2E-01	6.9E-01	6.6E-01
Shooting Range	Chemical Risk:	3E-05	3E-06	1E-06	1E-06
	Radionuclide Risk:	1E-05	3E-06	1E-06	1E-06
	Total Risk:	4E-05	6E-06	3E-06	2E-06
	Total HI:	8.1E-01	1.7E-01	1.4E-01	1.2E-01

TABLE A.7-6
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR ON-PROPERTY RECEPTORS

FUTURE LAND USE - WITHOUT ACCESS CONTROLS (AGRICULTURAL USE)

		On-Property RME Farmer	On-Property CT Farmer	On-Property Child	On-Property RME Farmer (use of perched GW)	Home Builder
Production Area	Radionuclide Risk:	2E-02	1E-03	1E-03	4E-02	4E-05
	Chemical Risk:	7E-03	3E-04	4E-03	2E-02	5E-06
	Total Risk:	2E-02	2E-03	5E-03	6E-02	4E-05
	Total HI:	8.7E+01	3.5E+01	2.6E+02	1.5E+03	3.3E+00
Northwest Area	Radionuclide Risk:	5E-04	3E-05	5E-05	NA	5E-07
	Chemical Risk:	1E-04	8E-06	5E-05	NA	7E-07
	Total Risk:	6E-04	4E-05	9E-05	NA	1E-06
	Total HI:	1.1E+01	4.1E+00	6.5E+01	NA	3.3E+00
Northeast Area	Radionuclide Risk:	1E-02	8E-04	7E-04	NA	3E-05
	Chemical Risk:	1E-03	7E-05	6E-04	NA	2E-05
	Total Risk:	1E-02	9E-04	1E-03	NA	5E-05
	Total HI:	5.3E+01	2.1E+01	2.1E+02	NA	3.3E+00
Southeast Area	Radionuclide Risk:	1E-02	6E-04	6E-04	NA	9E-07
	Chemical Risk:	4E-04	2E-05	1E-04	NA	6E-07
	Total Risk:	1E-02	6E-04	7E-04	NA	1E-06
	Total HI:	1.2E+02	5.5E+01	3.9E+02	NA	6.9E-01
Southwest Area	Radionuclide Risk:	7E-03	4E-04	4E-04	NA	1E-06
	Chemical Risk:	5E-04	3E-05	1E-04	NA	8E-07
	Total Risk:	8E-03	5E-04	6E-04	NA	2E-06
	Total HI:	8.4E+01	3.8E+01	2.5E+02	NA	1.2E+00
Waste Pit Area	Radionuclide Risk:	1E-02	9E-04	8E-04	NA	3E-05
	Chemical Risk:	3E-03	1E-04	1E-03	NA	1E-05
	Total Risk:	1E-02	1E-03	2E-03	NA	4E-05
	Total HI:	1.9E+01	7.8E+00	8.5E+01	NA	3.4E+00
Shooting Range	Chemical Risk:	1E-02	6E-04	6E-04	NA	8E-07
	Radionuclide Risk:	6E-04	4E-05	2E-04	NA	1E-06
	Total Risk:	1E-02	6E-04	7E-04	NA	2E-06
	Total HI:	3.7E+02	1.5E+02	8.1E+02	NA	1.7E+00

NA = not applicable

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TABLE A.7-7
SUMMARY OF CANCER RISKS AND HAZARD INDICES FOR OFF-PROPERTY RECEPTORS

FUTURE LAND USE, WITH AND WITHOUT ACCESS CONTROLS

	Off-Property Farmer	Off-Property Child	Great Miami River User		
			Household Use	Agricultural Use	Recreational Use
Eastern Boundary					
Radionuclide Risk:	8E-03	3E-04	NA	NA	NA
Chemical Risk:	9E-05	4E-05	NA	NA	NA
Total Risk:	9E-03	3E-04	NA	NA	NA
Total HI:	4.0E+01	1.6E+02	NA	NA	NA
Northern Boundary					
Radionuclide Risk:	3E-04	3E-05	NA	NA	NA
Chemical Risk:	3E-05	1E-05	NA	NA	NA
Total Risk:	3E-04	4E-05	NA	NA	NA
Total HI:	7.6E+00	4.2E+01	NA	NA	NA
Southern Boundary					
Radionuclide Risk:	2E-03	1E-04	NA	NA	NA
Chemical Risk:	4E-02	9E-03	NA	NA	NA
Total Risk:	4E-02	9E-03	NA	NA	NA
Total HI:	2.6E+01	7.3E+01	NA	NA	NA
Western Boundary					
Radionuclide Risk:	4E-04	5E-05	NA	NA	NA
Chemical Risk:	3E-05	6E-06	NA	NA	NA
Total Risk:	4E-04	5E-05	NA	NA	NA
Total HI:	6.5E-01	2.4E+00	NA	NA	NA
Farm NE of FEMP					
Radionuclide Risk:	5E-04	8E-05	NA	NA	NA
Chemical Risk:	1E-04	7E-05	NA	NA	NA
Total Risk:	6E-04	1E-04	NA	NA	NA
Total HI:	6.3E+00	2.8E+01	NA	NA	NA
Farm SE of FEMP					
Radionuclide Risk:	1E-03	1E-04	NA	NA	NA
Chemical Risk:	1E-02	2E-03	NA	NA	NA
Total Risk:	1E-02	2E-03	NA	NA	NA
Total HI:	1.2E+01	3.4E+01	NA	NA	NA
Farm at Well 2071					
Radionuclide Risk:	2E-05	5E-07	NA	NA	NA
Chemical Risk:	2E-04	5E-05	NA	NA	NA
Total Risk:	2E-04	5E-05	NA	NA	NA
Total HI:	5.1E-02	1.3E-01	NA	NA	NA
Farm at Well 2119					
Radionuclide Risk:	2E-04	1E-05	NA	NA	NA
Chemical Risk:	5E-07	1E-07	NA	NA	NA
Total Risk:	2E-04	1E-05	NA	NA	NA
Total HI:	2.6E+00	7.4E+00	NA	NA	NA
Farm at Well near GMR					
Radionuclide Risk:	1E-04	7E-06	NA	NA	NA
Chemical Risk:	1E-08	4E-09	NA	NA	NA
Total Risk:	1E-04	7E-06	NA	NA	NA
Total HI:	1.5E+00	4.1E+00	NA	NA	NA
GMR - Confluence with Paddys Run					
Radionuclide Risk:	NA	NA	2E-04	5E-05	1E-05
Chemical Risk:	NA	NA	3E-04	4E-05	1E-04
Total Risk:	NA	NA	5E-04	8E-05	2E-04
Total HI:	NA	NA	1.8E+00	5.3E-01	8.5E-01

NA = not applicable

TABLE A.7-8

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE SOILS ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Surface Soil[b] (0"- 6")	Background Risk to Surface Soil[a]	Cancer Risks - OU5[a] Area of Highest Concentration
Radionuclides[b]			
Cs_{137+1d}	4.4E-01	4.2E-05	1.0E-04
Pu_{238}	1.0E+00	9.8E-07	3.8E-06
Ra_{226+8d}	1.2E+00	3.1E-04	9.1E-03
Th_{230}	1.5E+00	9.1E-08	3.9E-06
$Th_{232+10d}$	1.1E+00	3.8E-04	9.5E-03
U_{234}	1.0E+00	1.9E-07	7.9E-05
$U_{235/236}$	9.1E-02	9.1E-07	3.7E-04
U_{238+2d}	1.1E+00	1.9E-06	1.0E-03
Chemical Carcinogens[b]			
arsenic	5.6E+00	1.0E-04	2.3E-04
beryllium	6.0E-01	1.7E-05	4.8E-05

Notes:
[a] Background risks and cancer risk summary based on on-property RME farmer.
[b] Values in units of pCi/g for radionuclides and mg/Kg for chemicals.

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TABLE A.7-9

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE SOILS ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Surface Soil (0" - 6")	Background HQ to Surface Soil	Hazard Quotients - OU5 Area of Highest Concentration
Toxicants	**(mg/Kg)**		
cyanide	1.5E-01	6.5E-02	8.6E-01
arsenic	5.6E+00	2.0E-01	4.6E-01
barium	7.0E+01	2.1E-02	7.1E-02
beryllium	6.0E-01	9.9E-03	2.9E-02
cadmium	5.2E-01	1.1E-01	1.2E+00
chromium vi	1.2E+01	3.7E-02	1.4E-01
cobalt	1.1E+01	9.1E-03	1.2E-02
copper	8.6E+00	1.0E-01	5.2E-01
magnesium	1.9E+03	2.5E-01	6.5E+00
manganese	8.1E+02	4.1E-01	9.0E-01
mercury	3.0E-01	1.2E+01	2.7E+00
nickel	1.3E+01	3.8E-02	7.8E-02
selenium	7.2E-01	9.8E-03	1.2E-02
thallium	5.8E-01	3.1E-01	3.8E-01
vanadium	2.2E+01	2.3E-02	3.1E-02
zinc	4.3E+01	1.6E+00	5.2E+00
total uranium	3.3E+00	2.4E-06	6.8E-04

Notes:
* Background hazard quotients and summary based on on-property RME farmer.

TABLE A.7–10

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN GROUNDWATER ON–PROPERTY RME FARMER

Constituents	Representative Background Concentration Ground Water	Background Risk to Ground Water[a]	Cancer Risks – OU5[a] Area of Highest Concentration
Radionuclides (pCi/L)			
Ra_{226+5d}	5.1E–01	2.4E–05	7.7E–04
U_{234}	1.1E+00	1.0E–06	2.9E–03
$U_{235/236}$	9.4E–02	8.7E–08	1.3E–04
U_{238+2d}	6.4E–01	1.0E–06	4.8E–03
Chemicals (mg/L)			
arsenic	2.0E–03	2.4E–01	1.2E+00
beryllium	2.0E–03	1.7E–02	1.0E–03

Notes:

[a] Background risk calculations and cancer risk summary based on on–property RME farmer.

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TABLE A.7-11

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN GROUNDWATER ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Ground Water	Background HQs to Ground Water[a]	Hazard Quotients-OU5[a] Area of Highest Concentration
Toxicants (mg/L)			
arsenic	8.9E-03	1.1E+00	1.2E+00
beryllium	1.0E-03	8.3E-03	1.0E-03
chromium vi	8.0E-03	7.2E-02	9.9E-01
copper	1.1E-02	5.4E-02	1.4E+00
magnesium	3.2E+01	1.8E-01	8.0E+00
manganese	7.8E-02	3.3E-02	1.0E+00
uranium-total	6.0E-01	6.6E+00	1.0E+02

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

TABLE A.7-12

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN PERCHED GROUNDWATER, ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Perched Water	Background Risk to Perched Water[a]	Cancer Risks – OU5[a] Production Area Perched Water
Radionuclides (pCi/L)			
Pu_{238}	7.5E-02	8.2E-07	1.0E-05
Ra_{226+5d}	5.1E-01	1.9E-05	8.0E-05
Th_{230}	6.8E-01	4.4E-07	9.6E-07
$Th_{232+10d}$	2.0E-01	1.7E-06	2.4E-05
U_{234}	6.0E-01	4.7E-07	7.8E-03
U_{238+2d}	5.1E-01	7.1E-07	1.7E-02
Np_{237}	1.6E-01	1.8E-06	2.2E-05
Sr_{90}	2.0E+00	3.6E-06	6.3E-06
Tc_{99}	3.0E+01	1.9E-06	1.2E-04
Chemicals (mg/L)			
arsenic	1.9E-02	9.1E-04	6.7E-04
beryllium	1.8E-03	2.7E-04	1.3E-03

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

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TABLE A.7-13

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN PERCHED GROUNDWATER, ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Perched Water	Background Risk to Perched Water[a]	Cancer Risks – OU5[a] Production Area Perched Water
Toxicants (mg/L)			
arsenic	1.9E-02	1.7E+00	1.3E+00
barium	4.5E-01	1.8E-01	1.1E-01
beryllium	1.8E-03	1.3E-02	6.1E-02
cadmium	6.0E-03	1.7E-01	4.6E-01
chromium vi	6.0E-03	3.3E-02	6.6E-01
copper	2.9E-02	2.1E-02	2.1E-01
magnesium	5.1E+01	1.5E-01	9.9E-01
manganese	2.1E-02	4.4E-03	5.9E-01
mercury	4.0E-04	3.7E-02	1.9E-02
molybdenum	1.7E-02	9.4E-02	2.4E-01
nickel	2.1E-02	2.9E-02	9.4E-02
silver	1.1E-02	6.0E-02	3.4E-01
uranium-total	1.4E+00	1.4E+01	1.3E+03
vanadium	1.9E-02	7.8E-02	1.1E+00
zinc	3.2E-01	2.9E-02	2.8E-02

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

TABLE A.7-14

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER FROM PADDYS RUN, EXPLORING YOUTH

Constituents	Representative Background Concentration Surface Water	Background Risk to Surface Water [a]	Summary of Cancer Risks – OU5 [a] Area 9 [b]	Area 10 [c]
Radionuclides (pCi/L)				
Ra_{226+5d}	3.5E−01	9.1E−10	NA	4.4E−09
Ra_{228+1d}	2.1E+00	4.6E−09	NA	3.2E+00
Sr_{90+1d}	9.6E−01	7.6E−10	NA	NA
Th_{230}	2.8E−01	7.8E−11	7.0E−10	1.2E−10
U_{234}	7.0E−01	2.4E−10	4.2E−07	3.8E−09
U_{238+2d}	7.3E−01	4.5E−10	7.3E−07	8.5E−09

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Exposure concentrations based on measured data for surface water from Pilot Plant Drainage Ditch.
[c] Exposure concentrations based on measured data for surface water from the Storm Sewer Outfall Ditch (SSOD) and Paddys Run.
NA – Not applicable. Constituent is not CPC for this area..

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TABLE A.7-15

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF PADDYS RUN, EXPLORING YOUTH

Constituents	Representative Background Concentration Surface Water	Background HQs to Surface Water [a]	Summary of Hazard Quotients – OU5 [a]	
			Area 9 [b]	Area 10 [c]
Toxicants (mg/L)				
barium	5.4E-02	1.0E-04	4.2E-04	NA
magnesium	2.8E+01	1.3E-03	3.1E-03	NA
manganese	3.5E-02	1.7E-04	NA	4.0E-03

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Exposure concentrations based on measured data for surface water from Pilot Plant Drainage Ditch.
[c] Exposure concentrations based on measured data for surface water from the Storm Sewer Outfall Ditch (SSOD) and Paddys Run.
NA – Not applicable. Constituent is not CPC for this area..

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TABLE A.7–16

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SEDIMENT EXPLORING YOUTH

Constituents	Representative Background Concentration Sediment	Background Risk to Sediment[a]	Range of Cancer Risks – OU5[a] Minimum	Maximum
Radionuclides (pCi/g)				
Ra_{226+Sd}	4.3E–01	1.8E–07	1.7E–07 [b]	4.5E–06 [c]
Chemicals (mg/Kg)				
arsenic	7.0E+00	7.4E–08	2.9E–08 [d]	1.2E–07 [e]
beryllium	5.0E–01	5.1E–06	2.1E–05 [d]	3.1E–05 [e]

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Based on measured data for sediments in Sewage Treatment Plant (Area 6).
[c] Based on measured data for sediments in Production Area (Area 2).
[d] Based on measured data for sediments in Paddys Run and SSOD (Area 10).
[e] Exposure concentrations based on measured data for sediments from Area 7.

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TABLE A.7-17

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SEDIMENT EXPLORING YOUTH

Constituents	Representative Background Concentration Sediment	Background HQs to Sediment	Range of Hazard Quotients – OU5 [a]	
			Minimum	Maximum
Toxicants (mg/Kg)				
aluminum	3.9E+03	ND	ND	ND
arsenic	7.0E+00	8.2E-04	3.1E-04 [b]	1.4E-03 [c]
beryllium	5.0E-01	1.4E-03	5.6E-03 [b]	8.3E-03 [c]
chromium VI	1.8E+01	1.2E-03	6.6E-04 [b]	6.6E-04 [b]
copper	1.5E+01	8.4E-06	5.7E-06 [b]	5.7E-06 [b]
manganese	4.2E+02	1.4E-02	1.1E-02 [c]	5.4E-02 [d]
nickel	2.0E+01	9.0E-05	3.0E-05 [b]	3.0E-05 [b]
uranium-total	1.7E+00	1.6E-03	1.0E-02 [e]	4.5E-01 [e]
vanadium	1.4E+01	6.0E-04	8.3E-04 [b]	8.3E-04 [b]

Notes:

[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.

[b] Based on measured data for sediments in Paddys Run and SSOD (Area 10).

[c] Exposure concentrations based on measured data for sediments from Area 7.

[c] Based on measured data for sediments in Production Area (Area 2).

[d] Based on measured data for sediments from north in Production Area (Area 4).

[e] Based on measured data for sediments in Sewage Treatment Plant (Area 6).

ND – No data for toxicity assessment.

TABLE A.7-18

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF GREAT MIAMI RIVER, GREAT MIAMI RIVER USER

Constituents	Representative Background Concentration Surface Water	Background Risk to Surface Water [a]	Cancer Risks – OU5 [a,b] Current Scenario	Cancer Risks – OU5 [a,b] Future Scenario
Radionuclides (pCi/L)				
Ra_{226+5d}	4.1E−01	4.5E−06	3.1E−05	NA
Ra_{228+1d}	2.2E+00	1.9E−05	4.0E−05	3.5E−06
Th_{230}	6.2E−01	6.0E−07	6.7E−07	7.1E−08
U_{234}	1.1E+00	1.0E−06	8.6E−07	6.9E−05
U_{238+2d}	7.6E−01	1.3E−06	1.4E−06	7.6E−06

Notes:
[a] Background risks and cancer risk summary based on calculated risks to Great Miami River user.
[b] Highest representative concentrations for the Effluent Outfall or the Confluence with Paddys Run are used.
NA = not applicable, constituent is not a CPC for that area

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TABLE A.7-19

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF GREAT MIAMI RIVER, GREAT MIAMI RIVER USER

Constituents	Representative Background Concentration Surface Water	Background HQs to Surface Water [a]	Hazard Quotients – OU5 [a,b] Current Scenario	Hazard Quotients – OU5 [a,b] Future Scenario
Toxicants (mg/L)				
arsenic	3.6E-03	6.1E-05	1.0E-04	4.3E-06
barium	1.0E-01	8.4E-02	1.9E-01	NA
cadmium	1.0E-02	2.6E+00	4.7E+00	NA
cyanide	5.2E-03	1.2E-06	4.8E-06	2.8E-06
lead	1.0E-02	0.0E+00	ND	ND
magnesium	3.5E+01	2.0E-01	2.7E-01	1.0E-01
manganese	8.2E-02	3.4E-02	2.4E-01	1.1E-02
nickel	2.3E-02	1.4E-01	1.6E-01	NA
uranium-total	1.0E-03	1.1E-02	3.1E-02	1.9E+00

Notes:
[a] Background hazard quotients and summary based on calculated risks to Great Miami River User.
NA – Not applicable. Constituent is not CPC for this area..
ND – no toxicity values available for developing HQs and Risk values.
[b] Highest representative concentrations for the Effluent Outfall or the Confluence with Paddys Run are used.

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TABLE A.7-20
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR SURFACE SOIL, BASED ON EXPOSURES TO ON-PROPERTY RME FARMER AND CHILD[a]

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/Kg)	@10^{-5} (mg/Kg)	@10^{-4} (mg/Kg)	PRG for Toxicants HI = 0.2 (mg/Kg)
cyanide	NA	NA	NA	1.1E-01
antimony	NA	NA	NA	6.1E-01
arsenic	5.5E-02	5.5E-01	5.5E+00	1.6E+00
barium	NA	NA	NA	8.7E+01
beryllium	3.6E-02	3.6E-01	3.6E+00	6.9E+00
cadmium	1.2E+02	1.2E+03	1.2E+04	1.3E-01
chromium vi	1.8E+01	1.8E+02	1.8E+03	1.1E+01
copper	NA	NA	NA	3.5E+00
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	1.9E+02
manganese	NA	NA	NA	8.3E+01
mercury	NA	NA	NA	2.7E-03
molybdenum	NA	NA	NA	9.1E-01
nickel	9.2E+02	9.2E+03	9.2E+04	1.4E+01
selenium	NA	NA	NA	2.5E+00
silver	NA	NA	NA	5.5E-02
thallium	NA	NA	NA	1.1E-01
uranium-total	NA	NA	NA	8.7E+00
vanadium	NA	NA	NA	5.8E+01
zinc	NA	NA	NA	1.2E+00
1,1-dichloroethane	NA	NA	NA	2.2E+07
1,1-dichloroethene	2.0E-03	2.0E-02	2.0E-01	5.6E-01
1,2-dichloroethane	1.3E-02	1.3E-01	1.3E+00	NA
1,2-dichloroethene	NA	NA	NA	5.4E-01
benzene	4.3E-02	4.3E-01	4.3E+00	NA
carbazole	3.1E-01	3.1E+00	3.1E+01	NA
carbon disulfide	NA	NA	NA	6.2E+00
carbon tetrachloride	1.9E-02	1.9E-01	1.9E+00	9.1E-02
chloroform	1.6E-01	1.6E+00	1.6E+01	5.0E-01
chlorobenzene	NA	NA	NA	2.0E+00
methylene chloride	6.3E-02	6.3E-01	6.3E+00	1.4E+00
n-nitrosodipropylamine	6.1E-05	6.1E-04	6.1E-03	NA

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TABLE A.7-20
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/Kg)	@10^{-5} (mg/Kg)	@10^{-4} (mg/Kg)	PRG for Toxicants HI = 0.2 (mg/Kg)
n-nitrosodiphenylamine	1.3E+00	1.3E+01	1.3E+02	NA
tetrachloroethene	1.0E-01	1.0E+00	1.0E+01	2.9E+00
trichloroethene	1.5E-01	1.5E+00	1.5E+01	NA
vinyl chloride	2.3E-04	2.3E-03	2.3E-02	NA
2-chlorophenol	NA	NA	NA	3.1E-01
bis(2-ethylhexyl)phthalate	1.5E+00	1.5E+01	1.5E+02	2.1E+01
pentachlorophenol	9.4E-02	9.4E-01	9.4E+00	1.4E+01
benzo(a)anthracene	2.6E-02	2.6E-01	2.6E+00	NA
benzo(a)pyrene	1.6E-03	1.6E-02	1.6E-01	NA
benzo(b)fluoranthene	1.5E-02	1.5E-01	1.5E+00	NA
benzo(k)fluoranthene	4.6E-02	4.6E-01	4.6E+00	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	2.6E+00	2.6E+01	2.6E+02	NA
dibenzo(a,h)anthracene	4.6E-04	4.6E-03	4.6E-02	NA
indeno(1,2,3-cd)pyrene	7.4E-03	7.4E-02	7.4E-01	NA
fluoranthene	NA	NA	NA	2.8E+01
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	6.4E+01
aroclor-1254	1.2E-03	1.2E-02	1.2E-01	NA
aroclor-1260	2.3E-04	2.3E-03	2.3E-02	NA
4,4-ddt	1.9E-02	1.9E-01	1.9E+00	1.1E-01
4,4-dde	3.9E-02	3.9E-01	3.9E+00	NA
dieldrin	9.2E-04	9.2E-03	9.2E-02	4.0E-02
chlorodane	1.1E-02	1.1E-01	1.1E+00	3.7E-02
tetrachlorodibenzo-p-dioxin	2.4E-08	2.4E-07	2.4E-06	NA
tetrachlorodibenzofuran	5.7E-08	5.7E-07	5.7E-06	NA
pentachlorodibenzofuran	4.9E-07	4.9E-06	4.9E-05	NA
hexachlorodibenzo-p-dioxin	3.5E-08	3.5E-07	3.5E-06	NA
hexachlorodibenzofuran	3.5E-08	3.5E-07	3.5E-06	NA
heptachlorodibenzo-p-dioxin	1.4E-07	1.4E-06	1.4E-05	NA
heptachlorodibenzofuran	2.7E-07	2.7E-06	2.7E-05	NA
octachlorodibenzo-p-dioxin	5.9E-07	5.9E-06	5.9E-05	NA
octachlorodibenzofuran	3.9E-07	3.9E-06	3.9E-05	NA
nitrate	NA	NA	NA	2.5E+04
fluoride	NA	NA	NA	8.5E+02

TABLE A.7-20
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/g)	@10^{-5} (pCi/g)	@10^{-4} (pCi/g)
Cs_{137}+1d	1.1E−02	1.1E−01	1.1E+00
Np_{237}+1d	4.9E−02	4.9E−01	4.9E+00
Pu_{238}	9.3E−01	9.3E+00	9.3E+01
$Pu_{239/240}$	9.0E−01	9.0E+00	9.0E+01
Ra_{226}+8d	3.9E−03	3.9E−02	3.9E−01
Sr_{90}+1d	1.7E−02	1.7E−01	1.7E+00
Tc_{99}	1.8E−02	1.8E−01	1.8E+00
Th_{230}	7.8E+00	7.8E+01	7.8E+02
Th_{232}+10d	2.8E−03	2.8E−02	2.8E−01
U_{234}	4.1E+00	4.1E+01	4.1E+02
$U_{235/236}$	9.8E−02	9.8E−01	9.8E+00
U_{238}+2d	5.2E−01	5.2E+00	5.2E+01
Rn_{222}+4d	NA	NA	NA

Notes: [a] PRGs for carcinogens based on exposure to RME farmer and PRGs for toxicants based on exposure to a child.

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TABLE A.7-21
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR GREAT MIAMI AQUIFER, BASED ON EXPOSURES TO ON-PROPERTY RME FARMER AND CHILD[a]

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
cyanide	NA	NA	NA	3.8E-02
antimony	NA	NA	NA	4.9E-04
arsenic	1.6E-05	1.6E-04	1.6E-03	6.3E-04
barium	NA	NA	NA	5.1E-02
beryllium	5.6E-06	5.6E-05	5.6E-04	1.0E-02
cadmium	NA	NA	NA	1.3E-04
chromium vi	NA	NA	NA	6.4E-03
copper	NA	NA	NA	9.4E-03
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	7.7E+00
manganese	NA	NA	NA	1.2E-01
mercury	NA	NA	NA	8.1E-05
molybdenum	NA	NA	NA	3.0E-03
nickel	NA	NA	NA	9.4E-03
selenium	NA	NA	NA	2.1E-03
silver	NA	NA	NA	1.3E-04
thallium	NA	NA	NA	8.2E-05
uranium-total	NA	NA	NA	6.5E-03
vanadium	NA	NA	NA	1.5E-02
zinc	NA	NA	NA	8.9E-04
1,1-dichloroethane	NA	NA	NA	6.0E-02
1,1-dichloroethene	2.5E-05	2.5E-04	2.5E-03	2.0E-02
1,2-dichloroethane	7.9E-05	7.9E-04	7.9E-03	NA
1,2-dichloroethene	NA	NA	NA	2.0E-02
benzene	2.4E-04	2.4E-03	2.4E-02	NA
carbazole	1.1E-03	1.1E-02	1.1E-01	NA
carbon disulfide	NA	NA	NA	1.2E-03
carbon tetrachloride	8.7E-05	8.7E-04	8.7E-03	1.2E-03
chloroform	1.2E-04	1.2E-03	1.2E-02	2.2E-02
chlorobenzene	NA	NA	NA	2.2E-03
methylene chloride	2.5E-03	2.5E-02	2.5E-01	1.1E-01
n-nitrosodipropylamine	4.2E-06	4.2E-05	4.2E-04	NA

TABLE A.7-21
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
n-nitrosodiphenylamine	3.9E-03	3.9E-02	3.9E-01	NA
tetrachloroethene	3.2E-04	3.2E-03	3.2E-02	1.6E-02
trichloroethene	9.1E-04	9.1E-03	9.1E-02	NA
vinyl chloride	1.0E-05	1.0E-04	1.0E-03	NA
2-chlorophenol	NA	NA	NA	7.8E-03
bis(2-ethylhexyl)phthalate	7.4E-04	7.4E-03	7.4E-02	2.1E-02
pentachlorophenol	1.3E-05	1.3E-04	1.3E-03	5.2E-03
benzo(a)anthracene	2.0E-05	2.0E-04	2.0E-03	NA
benzo(a)pyrene	1.7E-06	1.7E-05	1.7E-04	NA
benzo(b)fluoranthene	1.7E-05	1.7E-04	1.7E-03	NA
benzo(k)fluoranthene	7.5E-05	7.5E-04	7.5E-03	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	2.0E-03	2.0E-02	2.0E-01	NA
dibenzo(a,h)anthracene	7.6E-07	7.6E-06	7.6E-05	NA
indeno(1,2,3-cd)pyrene	1.1E-05	1.1E-04	1.1E-03	NA
fluoranthene	NA	NA	NA	9.8E-03
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	8.7E-03
aroclor-1254	1.4E-07	1.4E-06	1.4E-05	NA
aroclor-1260	2.4E-08	2.4E-07	2.4E-06	NA
4,4-ddt	3.2E-06	3.2E-05	3.2E-04	4.6E-05
4,4-dde	8.9E-06	8.9E-05	8.9E-04	NA
dieldrin	1.0E-06	1.0E-05	1.0E-04	7.4E-05
chlorodane	3.4E-06	3.4E-05	3.4E-04	1.8E-05
tetrachlorodibenzo-p-dioxin	1.8E-12	1.8E-11	1.8E-10	NA
tetrachlorodibenzofuran	1.5E-11	1.5E-10	1.5E-09	NA
pentachlorodibenzofuran	3.6E-11	3.6E-10	3.6E-09	NA
hexachlorodibenzo-p-dioxin	1.6E-11	1.6E-10	1.6E-09	NA
hexachlorodibenzofuran	1.6E-11	1.6E-10	1.6E-09	NA
heptachlorodibenzo-p-dioxin	1.3E-10	1.3E-09	1.3E-08	NA
heptachlorodibenzofuran	1.5E-10	1.5E-09	1.5E-08	NA
octachlorodibenzo-p-dioxin	8.6E-10	8.6E-09	8.6E-08	NA
octachlorodibenzofuran	6.7E-10	6.7E-09	6.7E-08	NA
nitrate	NA	NA	NA	4.0E+00
fluoride	NA	NA	NA	1.5E-01

TABLE A.7-21
(con't)

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Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/L)	@10^{-5} (pCi/L)	@10^{-4} (pCi/L)
Cs_{137}+1d	3.3E−01	3.3E+00	3.3E+01
Np_{237}+1d	7.8E−02	7.8E−01	7.8E+00
Pu_{238}	8.1E−02	8.1E−01	8.1E+00
$Pu_{239/240}$	7.7E−02	7.7E−01	7.7E+00
Ra_{226}+8d	2.1E−02	2.1E−01	2.1E+00
Sr_{90}+1d	3.1E−01	3.1E+00	3.1E+01
Tc_{99}	7.2E+00	7.2E+01	7.2E+02
Th_{230}	1.4E+00	1.4E+01	1.4E+02
Th_{232}+10d	1.0E−01	1.0E+00	1.0E+01
U_{234}	1.1E+00	1.1E+01	1.1E+02
$U_{235/236}$	1.1E+00	1.1E+01	1.1E+02
U_{238}+2d	6.2E−01	6.2E+00	6.2E+01
Rn_{222}+4d	NA	NA	NA

Notes: [a] PRGs for carcinogens based on exposure to RME farmer and PRGs for toxicants based on exposure to a child.

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TABLE A.7–22
RISK–BASED PRELIMINARY REMEDIATION GOALS FOR PERCHED GROUNDWATER, BASED ON EXPOSURES TO ON–PROPERTY RME FARMER AND CHILD[a]

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
cyanide	NA	NA	NA	6.3E–02
antimony	NA	NA	NA	1.2E–03
arsenic	2.1E–05	2.1E–04	2.1E–03	9.4E–04
barium	NA	NA	NA	2.2E–01
beryllium	6.6E–06	6.6E–05	6.6E–04	1.3E–02
cadmium	NA	NA	NA	3.0E–03
chromium vi	NA	NA	NA	1.6E–02
copper	NA	NA	NA	1.2E–01
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	2.9E+01
manganese	NA	NA	NA	4.1E–01
mercury	NA	NA	NA	9.3E–04
molybdenum	NA	NA	NA	1.6E–02
nickel	NA	NA	NA	6.2E–02
selenium	NA	NA	NA	1.6E–02
silver	NA	NA	NA	1.6E–02
thallium	NA	NA	NA	2.2E–04
uranium–total	NA	NA	NA	9.0E–03
vanadium	NA	NA	NA	2.1E–02
zinc	NA	NA	NA	9.3E–01
1,1–dichloroethane	NA	NA	NA	6.0E–02
1,1–dichloroethene	2.7E–05	2.7E–04	2.7E–03	2.6E–02
1,2–dichloroethane	8.4E–05	8.4E–04	8.4E–03	NA
1,2–dichloroethene	NA	NA	NA	2.7E–02
benzene	2.5E–04	2.5E–03	2.5E–02	NA
carbazole	1.8E–03	1.8E–02	1.8E–01	NA
carbon disulfide	NA	NA	NA	1.2E–03
carbon tetrachloride	9.9E–05	9.9E–04	9.9E–03	1.8E–03
chloroform	1.2E–04	1.2E–03	1.2E–02	2.9E–02
chlorobenzene	NA	NA	NA	2.3E–03
methylene chloride	2.6E–03	2.6E–02	2.6E–01	1.2E–01
n–nitrosodipropylamine	5.0E–06	5.0E–05	5.0E–04	NA

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TABLE A.7-22
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
n-nitrosodiphenylamine	4.3E-03	4.3E-02	4.3E-01	NA
tetrachloroethene	3.6E-04	3.6E-03	3.6E-02	2.0E-02
trichloroethene	1.0E-03	1.0E-02	1.0E-01	NA
vinyl chloride	1.2E-05	1.2E-04	1.2E-03	NA
2-chlorophenol	NA	NA	NA	1.4E-02
bis(2-ethylhexyl)phthalate	7.7E-04	7.7E-03	7.7E-02	2.3E-02
pentachlorophenol	1.3E-05	1.3E-04	1.3E-03	5.7E-03
benzo(a)anthracene	2.5E-05	2.5E-04	2.5E-03	NA
benzo(a)pyrene	2.5E-06	2.5E-05	2.5E-04	NA
benzo(b)fluoranthene	2.5E-05	2.5E-04	2.5E-03	NA
benzo(k)fluoranthene	2.5E-04	2.5E-03	2.5E-02	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	2.5E-03	2.5E-02	2.5E-01	NA
dibenzo(a,h)anthracene	2.5E-06	2.5E-05	2.5E-04	NA
indeno(1,2,3-cd)pyrene	2.5E-05	2.5E-04	2.5E-03	NA
fluoranthene	NA	NA	NA	1.0E-02
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	8.8E-03
aroclor-1254	1.5E-07	1.5E-06	1.5E-05	NA
aroclor-1260	2.6E-08	2.6E-07	2.6E-06	NA
4,4-ddt	3.8E-06	3.8E-05	3.8E-04	7.8E-05
4,4-dde	9.3E-06	9.3E-05	9.3E-04	NA
dieldrin	1.1E-06	1.1E-05	1.1E-04	8.9E-05
chlorodane	4.8E-06	4.8E-05	4.8E-04	4.3E-05
tetrachlorodibenzo-p-dioxin	1.9E-12	1.9E-11	1.9E-10	NA
tetrachlorodibenzofuran	1.9E-11	1.9E-10	1.9E-09	NA
pentachlorodibenzofuran	3.9E-11	3.9E-10	3.9E-09	NA
hexachlorodibenzo-p-dioxin	1.9E-11	1.9E-10	1.9E-09	NA
hexachlorodibenzofuran	1.9E-11	1.9E-10	1.9E-09	NA
heptachlorodibenzo-p-dioxin	1.9E-10	1.9E-09	1.9E-08	NA
heptachlorodibenzofuran	1.9E-10	1.9E-09	1.9E-08	NA
octachlorodibenzo-p-dioxin	1.9E-09	1.9E-08	1.9E-07	NA
octachlorodibenzofuran	1.9E-09	1.9E-08	1.9E-07	NA
nitrate	NA	NA	NA	5.0E+00
fluoride	NA	NA	NA	1.9E-01

TABLE A.7-22
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/L)	@10^{-5} (pCi/L)	@10^{-4} (pCi/L)
Cs_{137}+1d	7.3E−01	7.3E+00	7.3E+01
Np_{237}+1d	9.3E−02	9.3E−01	9.3E+00
Pu_{238}	9.3E−02	9.3E−01	9.3E+00
$Pu_{239/240}$	8.9E−02	8.9E−01	8.9E+00
Ra_{226}+8d	2.6E−02	2.6E−01	2.6E+00
Sr_{90}+1d	5.7E−01	5.7E+00	5.7E+01
Tc_{99}	1.6E+01	1.6E+02	1.6E+03
Th_{230}	1.6E+00	1.6E+01	1.6E+02
Th_{232}+10d	1.2E−01	1.2E+00	1.2E+01
U_{234}	1.3E+00	1.3E+01	1.3E+02
$U_{235/236}$	1.3E+00	1.3E+01	1.3E+02
U_{238}+2d	7.3E−01	7.3E+00	7.3E+01
Rn_{222}+4d	NA	NA	NA

TABLE A.7-23
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR SURFACE WATER IN PADDYS RUN, BASED ON EXPOSURES TO A CONSUMER OF MEAT AND MILK PRODUCTS

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
cyanide	NA	NA	NA	5.5E+05
antimony	NA	NA	NA	1.1E+00
arsenic	4.9E-03	4.9E-02	4.9E-01	5.1E-01
barium	NA	NA	NA	1.5E+02
beryllium	4.5E-03	4.5E-02	4.5E-01	1.9E+01
cadmium	NA	NA	NA	7.3E-01
chromium vi	NA	NA	NA	1.5E+00
copper	NA	NA	NA	8.4E+00
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	1.6E+03
manganese	NA	NA	NA	2.6E+02
mercury	NA	NA	NA	4.6E-03
molybdenum	NA	NA	NA	1.5E+00
nickel	NA	NA	NA	7.2E+00
selenium	NA	NA	NA	5.7E-01
silver	NA	NA	NA	2.0E-01
thallium	NA	NA	NA	5.5E-03
uranium-total	NA	NA	NA	3.8E+00
vanadium	NA	NA	NA	1.0E+01
zinc	NA	NA	NA	7.9E+00
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	3.9E+00	3.9E+01	3.9E+02	4.2E+03
1,2-dichloroethane	2.8E+01	2.8E+02	2.8E+03	NA
1,2-dichloroethene	NA	NA	NA	4.1E+03
benzene	7.9E+01	7.9E+02	7.9E+03	NA
carbazole	4.7E+00	4.7E+01	4.7E+02	NA
carbon disulfide	NA	NA	NA	4.2E+04
carbon tetrachloride	4.4E+00	4.4E+01	4.4E+02	8.0E+01
chloroform	5.6E+02	5.6E+03	5.6E+04	6.8E+03
chlorobenzene	NA	NA	NA	4.0E+03
methylene chloride	2.8E+03	2.8E+04	2.8E+05	2.5E+05
n-nitrosodipropylamine	2.2E+00	2.2E+01	2.2E+02	NA

TABLE A.7-23
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
n-nitrosodiphenylamine	2.1E+01	2.1E+02	2.1E+03	NA
tetrachloroethene	2.4E+00	2.4E+01	2.4E+02	2.5E+02
trichloroethene	1.1E+02	1.1E+03	1.1E+04	NA
vinyl chloride	7.1E+00	7.1E+01	7.1E+02	NA
2-chlorophenol	NA	NA	NA	2.2E+03
bis(2-ethylhexyl)phthalate	1.4E-01	1.4E+00	1.4E+01	7.7E+00
pentachlorophenol	3.6E-03	3.6E-02	3.6E-01	2.6E+00
benzo(a)anthracene	9.2E-04	9.2E-03	9.2E-02	NA
benzo(a)pyrene	3.4E-05	3.4E-04	3.4E-03	NA
benzo(b)fluoranthene	3.2E-04	3.2E-03	3.2E-02	NA
benzo(k)fluoranthene	6.1E-04	6.1E-03	6.1E-02	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	9.2E-02	9.2E-01	9.2E+00	NA
dibenzo(a,h)anthracene	6.1E-06	6.1E-05	6.1E-04	NA
indeno(1,2,3-cd)pyrene	1.1E-04	1.1E-03	1.1E-02	NA
fluoranthene	NA	NA	NA	2.8E+01
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	2.4E+00
aroclor-1254	3.7E-05	3.7E-04	3.7E-03	NA
aroclor-1260	2.9E-06	2.9E-05	2.9E-04	NA
4,4-ddt	4.0E-04	4.0E-03	4.0E-02	1.3E-02
4,4-dde	1.8E-03	1.8E-02	1.8E-01	NA
dieldrin	5.3E-04	5.3E-03	5.3E-02	8.5E-02
chlorodane	6.8E-04	6.8E-03	6.8E-02	1.1E-02
tetrachlorodibenzo-p-dioxin	3.3E-10	3.3E-09	3.3E-08	NA
tetrachlorodibenzofuran	6.0E-10	6.0E-09	6.0E-08	NA
pentachlorodibenzofuran	6.6E-09	6.6E-08	6.6E-07	NA
hexachlorodibenzo-p-dioxin	3.5E-10	3.5E-09	3.5E-08	NA
hexachlorodibenzofuran	3.5E-10	3.5E-09	3.5E-08	NA
heptachlorodibenzo-p-dioxin	1.4E-09	1.4E-08	1.4E-07	NA
heptachlorodibenzofuran	2.6E-09	2.6E-08	2.6E-07	NA
octachlorodibenzo-p-dioxin	5.4E-09	5.4E-08	5.4E-07	NA
octachlorodibenzofuran	3.6E-09	3.6E-08	3.6E-07	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA

TABLE A.7-23
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/L)	@10^{-5} (pCi/L)	@10^{-4} (pCi/L)
Cs_{137}+1d	7.3E+00	7.3E+01	7.3E+02
Np_{237}+1d	6.3E+02	6.3E+03	6.3E+04
Pu_{238}	5.0E+04	5.0E+05	5.0E+06
$Pu_{239/240}$	4.8E+04	4.8E+05	4.8E+06
Ra_{226}+8d	5.8E+00	5.8E+01	5.8E+02
Sr_{90}+1d	4.0E+01	4.0E+02	4.0E+03
Tc_{99}	1.5E+02	1.5E+03	1.5E+04
Th_{230}	2.8E+04	2.8E+05	2.8E+06
Th_{232}+10d	2.1E+03	2.1E+04	2.1E+05
U_{234}	2.2E+02	2.2E+03	2.2E+04
$U_{235/236}$	2.2E+02	2.2E+03	2.2E+04
U_{238}+2d	1.3E+02	1.3E+03	1.3E+04
Rn_{222}+4d	NA	NA	NA

TABLE A.7-24
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR SURFACE WATER IN PADDYS RUN, BASED ON EXPOSURES TO AN EXPLORING YOUTH

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
cyanide	NA	NA	NA	2.0E+02
antimony	NA	NA	NA	2.0E+00
arsenic	2.5E-02	2.5E-01	2.5E+00	2.6E+00
barium	NA	NA	NA	6.1E+02
beryllium	7.5E-04	7.5E-03	7.5E-02	3.2E+00
cadmium	NA	NA	NA	2.6E+00
chromium vi	NA	NA	NA	3.0E+01
copper	NA	NA	NA	3.7E+02
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	2.5E+04
manganese	NA	NA	NA	2.4E+02
mercury	NA	NA	NA	1.5E+00
molybdenum	NA	NA	NA	3.6E+01
nickel	NA	NA	NA	1.8E+02
selenium	NA	NA	NA	4.3E+01
silver	NA	NA	NA	5.0E+01
thallium	NA	NA	NA	6.1E-01
uranium-total	NA	NA	NA	7.7E+00
vanadium	NA	NA	NA	1.8E+01
zinc	NA	NA	NA	2.2E+03
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	1.7E-02	1.7E-01	1.7E+00	1.8E+01
1,2-dichloroethane	2.4E-01	2.4E+00	2.4E+01	NA
1,2-dichloroethene	NA	NA	NA	3.9E+01
benzene	2.8E-01	2.8E+00	2.8E+01	NA
carbazole	2.2E+00	2.2E+01	2.2E+02	NA
carbon disulfide	NA	NA	NA	1.6E+02
carbon tetrachloride	4.4E-02	4.4E-01	4.4E+00	8.0E-01
chloroform	2.4E+00	2.4E+01	2.4E+02	2.9E+01
chlorobenzene	NA	NA	NA	2.8E+01
methylene chloride	3.3E+00	3.3E+01	3.3E+02	3.0E+02
n-nitrosodipropylamine	3.4E-03	3.4E-02	3.4E-01	NA

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TABLE A.7-24
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
n-nitrosodiphenylamine	5.1E-01	5.1E+00	5.1E+01	NA
tetrachloroethene	4.5E-02	4.5E-01	4.5E+00	4.7E+00
trichloroethene	7.7E-01	7.7E+00	7.7E+01	NA
vinyl chloride	9.9E-03	9.9E-02	9.9E-01	NA
2-chlorophenol	NA	NA	NA	1.2E+01
bis(2-ethylhexyl)phthalate	5.8E-02	5.8E-01	5.8E+00	3.2E+00
pentachlorophenol	7.4E-04	7.4E-03	7.4E-02	5.4E-01
benzo(a)anthracene	3.4E-02	3.4E-01	3.4E+00	NA
benzo(a)pyrene	3.4E-03	3.4E-02	3.4E-01	NA
benzo(b)fluoranthene	3.4E-02	3.4E-01	3.4E+00	NA
benzo(k)fluoranthene	3.4E-01	3.4E+00	3.4E+01	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	3.4E+00	3.4E+01	3.4E+02	NA
dibenzo(a,h)anthracene	3.4E-03	3.4E-02	3.4E-01	NA
indeno(1,2,3-cd)pyrene	3.4E-02	3.4E-01	3.4E+00	NA
fluoranthene	NA	NA	NA	9.7E-01
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	8.5E-02
aroclor-1254	8.6E-06	8.6E-05	8.6E-04	NA
aroclor-1260	1.4E-06	1.4E-05	1.4E-04	NA
4,4-ddt	2.1E-04	2.1E-03	2.1E-02	7.2E-03
4,4-dde	5.5E-04	5.5E-03	5.5E-02	NA
dieldrin	1.1E-04	1.1E-03	1.1E-02	1.8E-02
chlorodane	3.1E-04	3.1E-03	3.1E-02	4.8E-03
tetrachlorodibenzo-p-dioxin	1.0E-10	1.0E-09	1.0E-08	NA
tetrachlorodibenzofuran	1.0E-09	1.0E-08	1.0E-07	NA
pentachlorodibenzofuran	2.1E-09	2.1E-08	2.1E-07	NA
hexachlorodibenzo-p-dioxin	1.0E-09	1.0E-08	1.0E-07	NA
hexachlorodibenzofuran	1.0E-09	1.0E-08	1.0E-07	NA
heptachlorodibenzo-p-dioxin	1.0E-08	1.0E-07	1.0E-06	NA
heptachlorodibenzofuran	1.0E-08	1.0E-07	1.0E-06	NA
octachlorodibenzo-p-dioxin	1.0E-07	1.0E-06	1.0E-05	NA
octachlorodibenzofuran	1.0E-07	1.0E-06	1.0E-05	NA
nitrate	NA	NA	NA	1.4E+04
fluoride	NA	NA	NA	5.3E+02

TABLE A.7-24
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/L)	@10^{-5} (pCi/L)	@10^{-4} (pCi/L)
Cs_{137}+1d	1.6E+03	1.6E+04	1.6E+05
Np_{237}+1d	2.1E+02	2.1E+03	2.1E+04
Pu_{238}	2.1E+02	2.1E+03	2.1E+04
$Pu_{239/240}$	2.0E+02	2.0E+03	2.0E+04
Ra_{226}+8d	5.9E+01	5.9E+02	5.9E+03
Sr_{90}+1d	1.3E+03	1.3E+04	1.3E+05
Tc_{99}	3.5E+04	3.5E+05	3.5E+06
Th_{230}	3.5E+03	3.5E+04	3.5E+05
Th_{232}+10d	2.7E+02	2.7E+03	2.7E+04
U_{234}	2.9E+03	2.9E+04	2.9E+05
$U_{235/236}$	2.9E+03	2.9E+04	2.9E+05
U_{238}+2d	1.6E+03	1.6E+04	1.6E+05
Rn_{222}+4d	NA	NA	NA

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TABLE A.7-25
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR SURFACE WATER OF THE GREAT MIAMI RIVER

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
cyanide	NA	NA	NA	1.1E-01
antimony	NA	NA	NA	1.5E-03
arsenic	1.1E-05	1.1E-04	1.1E-03	1.2E-03
barium	NA	NA	NA	2.4E-01
beryllium	4.7E-06	4.7E-05	4.7E-04	2.0E-02
cadmium	NA	NA	NA	7.6E-04
chromium vi	NA	NA	NA	2.0E-02
copper	NA	NA	NA	3.0E-02
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	3.5E+01
manganese	NA	NA	NA	4.7E-01
mercury	NA	NA	NA	2.8E-05
molybdenum	NA	NA	NA	1.3E-02
nickel	NA	NA	NA	3.3E-02
selenium	NA	NA	NA	9.5E-03
silver	NA	NA	NA	5.7E-04
thallium	NA	NA	NA	2.4E-04
uranium-total	NA	NA	NA	1.7E-02
vanadium	NA	NA	NA	3.7E-02
zinc	NA	NA	NA	3.8E-03
1,1-dichloroethane	NA	NA	NA	2.8E-01
1,1-dichloroethene	2.2E-05	2.2E-04	2.2E-03	4.0E-02
1,2-dichloroethane	7.5E-05	7.5E-04	7.5E-03	NA
1,2-dichloroethene	NA	NA	NA	4.2E-02
benzene	2.3E-04	2.3E-03	2.3E-02	NA
carbazole	3.8E-04	3.8E-03	3.8E-02	NA
carbon disulfide	NA	NA	NA	5.5E-03
carbon tetrachloride	6.9E-05	6.9E-04	6.9E-03	2.0E-03
chloroform	1.2E-04	1.2E-03	1.2E-02	4.8E-02
chlorobenzene	NA	NA	NA	9.5E-03
methylene chloride	2.4E-03	2.4E-02	2.4E-01	2.9E-01
n-nitrosodipropylamine	4.0E-06	4.0E-05	4.0E-04	NA

TABLE A.7-25
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/L)	@10^{-5} (mg/L)	@10^{-4} (mg/L)	PRG for Toxicants HI = 0.2 (mg/L)
n-nitrosodiphenylamine	1.5E-03	1.5E-02	1.5E-01	NA
tetrachloroethene	1.5E-04	1.5E-03	1.5E-02	1.6E-02
trichloroethene	8.1E-04	8.1E-03	8.1E-02	NA
vinyl chloride	9.9E-06	9.9E-05	9.9E-04	NA
2-chlorophenol	NA	NA	NA	1.9E-02
bis(2-ethylhexyl)phthalate	3.5E-05	3.5E-04	3.5E-03	2.0E-03
pentachlorophenol	1.4E-06	1.4E-05	1.4E-04	1.0E-03
benzo(a)anthracene	3.6E-07	3.6E-06	3.6E-05	NA
benzo(a)pyrene	1.7E-08	1.7E-07	1.7E-06	NA
benzo(b)fluoranthene	1.6E-07	1.6E-06	1.6E-05	NA
benzo(k)fluoranthene	4.6E-07	4.6E-06	4.6E-05	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	3.6E-05	3.6E-04	3.6E-03	NA
dibenzo(a,h)anthracene	4.6E-09	4.6E-08	4.6E-07	NA
indeno(1,2,3-cd)pyrene	7.3E-08	7.3E-07	7.3E-06	NA
fluoranthene	NA	NA	NA	5.0E-03
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	2.6E-03
aroclor-1254	1.6E-08	1.6E-07	1.6E-06	NA
aroclor-1260	2.3E-09	2.3E-08	2.3E-07	NA
4,4-ddt	2.1E-07	2.1E-06	2.1E-05	7.3E-06
4,4-dde	6.7E-07	6.7E-06	6.7E-05	NA
dieldrin	1.0E-07	1.0E-06	1.0E-05	1.6E-05
chlorodane	2.4E-07	2.4E-06	2.4E-05	3.7E-06
tetrachlorodibenzo-p-dioxin	2.1E-13	2.1E-12	2.1E-11	NA
tetrachlorodibenzofuran	6.4E-13	6.4E-12	6.4E-11	NA
pentachlorodibenzofuran	4.3E-12	4.3E-11	4.3E-10	NA
hexachlorodibenzo-p-dioxin	4.2E-13	4.2E-12	4.2E-11	NA
hexachlorodibenzofuran	4.2E-13	4.2E-12	4.2E-11	NA
heptachlorodibenzo-p-dioxin	2.1E-12	2.1E-11	2.1E-10	NA
heptachlorodibenzofuran	3.4E-12	3.4E-11	3.4E-10	NA
octachlorodibenzo-p-dioxin	1.0E-11	1.0E-10	1.0E-09	NA
octachlorodibenzofuran	7.6E-12	7.6E-11	7.6E-10	NA
nitrate	NA	NA	NA	1.0E+01
fluoride	NA	NA	NA	3.8E-01

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TABLE A.7-25
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/L)	@10^{-5} (pCi/L)	@10^{-4} (pCi/L)
Cs_{137}+1d	2.9E−02	2.9E−01	2.9E+00
Np_{237}+1d	7.1E−02	7.1E−01	7.1E+00
Pu_{238}	6.4E−02	6.4E−01	6.4E+00
$Pu_{239/240}$	6.2E−02	6.2E−01	6.2E+00
Ra_{226}+8d	1.4E−02	1.4E−01	1.4E+00
Sr_{90}+1d	2.6E−01	2.6E+00	2.6E+01
Tc_{99}	6.7E+00	6.7E+01	6.7E+02
Th_{230}	1.0E+00	1.0E+01	1.0E+02
Th_{232}+10d	8.0E−02	8.0E−01	8.0E+00
U_{234}	1.1E+00	1.1E+01	1.1E+02
$U_{235/236}$	1.1E+00	1.1E+01	1.1E+02
U_{238}+2d	6.0E−01	6.0E+00	6.0E+01
Rn_{222}+4d	NA	NA	NA

TABLE A.7-26
RISK-BASED PRELIMINARY REMEDIATION GOALS FOR SEDIMENT, BASED ON EXPOSURES TO AN EXPLORING YOUTH

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/Kg)	@10^{-5} (mg/Kg)	@10^{-4} (mg/Kg)	PRG for Toxicants HI = 0.2 (mg/Kg)
cyanide	NA	NA	NA	1.9E+05
antimony	NA	NA	NA	8.4E+01
arsenic	9.4E+01	9.4E+02	9.4E+03	1.7E+03
barium	NA	NA	NA	8.1E+04
beryllium	3.3E+01	3.3E+02	3.3E+03	7.2E+01
cadmium	NA	NA	NA	7.1E+01
chromium vi	NA	NA	NA	3.0E+03
copper	NA	NA	NA	3.6E+05
lead	NA	NA	NA	NA
magnesium	NA	NA	NA	6.9E+05
manganese	NA	NA	NA	6.0E+03
mercury	NA	NA	NA	1.3E+01
molybdenum	NA	NA	NA	2.6E+03
nickel	NA	NA	NA	4.4E+04
selenium	NA	NA	NA	5.1E+03
silver	NA	NA	NA	4.8E+04
thallium	NA	NA	NA	8.8E+01
uranium-total	NA	NA	NA	2.1E+02
vanadium	NA	NA	NA	4.7E+03
zinc	NA	NA	NA	1.0E+05
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	2.3E+00	2.3E+01	2.3E+02	4.3E+02
1,2-dichloroethane	1.5E+01	1.5E+02	1.5E+03	NA
1,2-dichloroethene	NA	NA	NA	4.3E+02
benzene	7.1E+03	7.1E+04	7.1E+05	NA
carbazole	6.3E+01	6.3E+02	6.3E+03	NA
carbon disulfide	NA	NA	NA	4.8E+03
carbon tetrachloride	1.1E+01	1.1E+02	1.1E+03	3.3E+01
chloroform	2.3E+02	2.3E+03	2.3E+04	4.8E+02
chlorobenzene	NA	NA	NA	9.5E+02
methylene chloride	1.9E+02	1.9E+03	1.9E+04	2.9E+03
n-nitrosodipropylamine	1.8E-01	1.8E+00	1.8E+01	NA

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TABLE A.7-26
(con't)

Chemical Constituents	PRGs for Carcinogenic Constituents @10^{-6} (mg/Kg)	@10^{-5} (mg/Kg)	@10^{-4} (mg/Kg)	PRG for Toxicants HI = 0.2 (mg/Kg)
n-nitrosodiphenylamine	2.6E+02	2.6E+03	2.6E+04	NA
tetrachloroethene	1.8E+01	1.8E+02	1.8E+03	3.2E+02
trichloroethene	1.2E+02	1.2E+03	1.2E+04	NA
vinyl chloride	6.6E-01	6.6E+00	6.6E+01	NA
2-chlorophenol	NA	NA	NA	2.4E+02
bis(2-ethylhexyl)phthalate	9.9E+01	9.9E+02	9.9E+03	9.5E+02
pentachlorophenol	1.0E+01	1.0E+02	1.0E+03	1.3E+03
benzo(a)anthracene	1.9E+02	1.9E+03	1.9E+04	NA
benzo(a)pyrene	1.9E+01	1.9E+02	1.9E+03	NA
benzo(b)fluoranthene	1.9E+02	1.9E+03	1.9E+04	NA
benzo(k)fluoranthene	1.9E+03	1.9E+04	1.9E+05	NA
benzo(g,h,i)perylene	NA	NA	NA	NA
chrysene	1.9E+04	1.9E+05	1.9E+06	NA
dibenzo(a,h)anthracene	1.9E+01	1.9E+02	1.9E+03	NA
indeno(1,2,3-cd)pyrene	1.9E+02	1.9E+03	1.9E+04	NA
fluoranthene	NA	NA	NA	8.2E+02
phenanthrene	NA	NA	NA	NA
pyrene	NA	NA	NA	6.2E+02
aroclor-1254	1.4E-01	1.4E+00	1.4E+01	NA
aroclor-1260	1.4E-01	1.4E+00	1.4E+01	NA
4,4-ddt	3.7E+00	3.7E+01	3.7E+02	2.1E+01
4,4-dde	4.1E+00	4.1E+01	4.1E+02	NA
dieldrin	8.7E-02	8.7E-01	8.7E+00	2.4E+00
chlorodane	9.6E-01	9.6E+00	9.6E+01	2.6E+00
tetrachlorodibenzo-p-dioxin	4.5E-05	4.5E-04	4.5E-03	NA
tetrachlorodibenzofuran	4.5E-04	4.5E-03	4.5E-02	NA
pentachlorodibenzofuran	9.1E-04	9.1E-03	9.1E-02	NA
hexachlorodibenzo-p-dioxin	4.5E-04	4.5E-03	4.5E-02	NA
hexachlorodibenzofuran	4.5E-04	4.5E-03	4.5E-02	NA
heptachlorodibenzo-p-dioxin	4.5E-03	4.5E-02	4.5E-01	NA
heptachlorodibenzofuran	4.5E-03	4.5E-02	4.5E-01	NA
octachlorodibenzo-p-dioxin	4.5E-02	4.5E-01	4.5E+00	NA
octachlorodibenzofuran	4.5E-02	4.5E-01	4.5E+00	NA
nitrate	NA	NA	NA	1.5E+07
fluoride	NA	NA	NA	7.5E+04

TABLE A.7–26
(con't)

Radionuclide Constituents	PRGs for Carcinogenic Constituents @10^{-6} (pCi/g)	@10^{-5} (pCi/g)	@10^{-4} (pCi/g)
Cs_{137}+1d	7.0E+00	7.0E+01	7.0E+02
Np_{237}+1d	3.2E+01	3.2E+02	3.2E+03
Pu_{238}	1.2E+03	1.2E+04	1.2E+05
$Pu_{239/240}$	1.1E+03	1.1E+04	1.1E+05
Ra_{226}+8d	2.3E+00	2.3E+01	2.3E+02
Sr_{90}+1d	7.1E+03	7.1E+04	7.1E+05
Tc_{99}	2.0E+05	2.0E+06	2.0E+07
Th_{230}	1.8E+04	1.8E+05	1.8E+06
Th_{232}+10d	1.6E+00	1.6E+01	1.6E+02
U_{234}	1.5E+04	1.5E+05	1.5E+06
$U_{235/236}$	5.8E+01	5.8E+02	5.8E+03
U_{238}+2d	3.7E+02	3.7E+03	3.7E+04
Rn_{222}+4d	NA	NA	NA

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TABLE A.I-1

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS FOR PERCHED WATER AT FEMP

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Radionuclides (pCi/L)										
Cesium-137	NA	0/13	NA	ND	NA	Undefined	NA	ND	NA	ND
Neptunium-237	NA	3/10	NA	0.043 - 0.25	NA	Undefined	NA	0.16	NA	0.25
Plutonium-238	NA	1/13	NA	0.075	NA	Undefined	NA	0.075[b]	NA	0.075
Plutonium-239/240	NA	0/19	NA	ND	NA	Undefined	NA	ND	NA	ND
Radium-226	1/4	9/22	0.9	0.14 - 0.9	Undefined	Lognormal	0.9	0.51	0.9	0.9
Radium-228	1/4	4/22	2.2	1.9 - 5.2	Undefined	Undefined	2.2	1.9	2.2	3
Ruthenium-106	NA	0/13	NA	ND	NA	Undefined	NA	ND	NA	ND
Strontium-90	NA	1/16	NA	2.0	NA	Undefined	NA	2.0[b]	NA	2.0
Technetium-99	1/4	2/26	30	30 - 49.3	Undefined	Undefined	30	30[b]	30	30
Thorium-228	1/2	11/24	0.1	0.23 - 1.62	Undefined	Lognormal	0.1	0.83	0.1	1.6
Thorium-230	0/4	11/25	ND	0.14 - 2.0	Undefined	Lognormal	ND	0.68	ND	1.3
Thorium-232	0/3	3/14	ND	0.2 - 0.34	Undefined	Undefined	ND	0.2	ND	0.34
Uranium-234	1/1	9/13	0.6	0.25 - 1.1	Undefined	Normal	0.6	0.58	0.6	0.9
Uranium-235/236	0/2	0/13	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Uranium-238	A	9/13	A	0.23 - 0.99	A	Normal	A	0.51	A	0.8
Radionuclides (μg/L)										
Thorium, Total	NA	1/10	NA	3.1	NA	Undefined	NA	3.1[b]	NA	3.1
Uranium, Total	2/3	8/15	1.0 - 1.4	0.48 - 1.5	Undefined	Normal	1.4	0.75	1.4	1.3

TABLE A.I-1 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Inorganics (mg/L)										
Aluminum	3/7	2/5	0.0375 - 0.123	0.774 - 2.29	Undefined	Undefined	0.123	2.29	0.123	2.29
Antimony	2/4	0/2	0.0141 - 0.0272	ND	Undefined	Undefined	0.006	ND	0.027	ND
Arsenic	5/17	3/5	0.0042 - 0.122	0.0031 - 0.0194	Undefined	Undefined	0.05	0.0194	0.122	0.0194
Barium	22/23	5/5	0.034 - 0.452	0.0486 - 0.454	Undefined	Undefined	0.091	0.454	0.451	0.454
Beryllium	2/6	0/4	0.001 - 0.0018	ND	Undefined	Undefined	0.0018	ND	0.0018	ND
Cadmium	2/22	0/4	0.006 - 0.007	ND	Undefined	Undefined	0.006	ND	0.006	ND
Calcium	25/25	5/5	74.4 - 155	81.1 - 172	Lognormal	Undefined	103	172	131	172
Chromium	8/24	1/5	0.006 - 0.0345	0.0046	Undefined	Undefined	0.006	0.0046	0.034	0.0046
Cobalt	0/7	0/5	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Copper	4/23	3/5	0.013 - 0.03	0.0053 - 0.0294	Undefined	Undefined	0.013	0.0294	0.019	0.0294
Cyanide	0/4	0/5	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Iron	18/25	5/5	0.0467 - 4.9	0.249 - 6.35	Undefined	Undefined	4.9	6.35	4.9	6.35
Lead	6/17	3/4	0.0014 - 0.0087	0.0013 - 0.0016	Undefined	Undefined	0.002	0.0016	0.0087	0.0016
Magnesium	25/25	5/5	20.4 - 47.8	23.1 - 50.7	Lognormal	Undefined	36.5	50.7	47.8	50.7
Manganese	19/23	4/5	0.0025 - 0.22	0.0035 - 0.205	Lognormal	Undefined	0.05	0.05	0.18	0.205
Mercury	1/22	0/5	0.0004	ND	Undefined	Undefined	0.0004	ND	0.0004	ND
Molybdenum	2/20	0/4	0.017 - 0.028	ND	Undefined	Undefined	0.017[b]	ND	0.017	ND
Nickel	4/24	1/5	0.021 - 0.026	0.0072	Undefined	Undefined	0.021	0.0072	0.022	0.0072
Potassium	21/23	4/5	0.891 - 31.5	0.963 - 17.2	Lognormal	Undefined	18	17.2	29.3	17.2
Selenium	0/16	0/5	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Silicon	4/4	4/4	5.62 - 7.43	5.6 - 10.7	Undefined	Undefined	7.43	10.7	7.43	10.7
Silver	5/25	1/5	0.0105 - 0.052	0.0031	Undefined	Undefined	0.0105	0.0031	0.04	0.0031

TABLE A.I-1 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Sodium	23/23	5/5	5.71 - 56.3	8.81 - 50	Lognormal	Undefined	32.3	50	56.3	50
Thallium	0/5	0/5	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Vanadium	2/7	1/5	0.018 - 0.0195	0.0051	Undefined	Undefined	0.0195	0.0051	0.0195	0.0051
Zinc	5/7	4/5	0.0104 - 0.0443	0.0192 - 0.352	Undefined	Undefined	0.0443	0.352	0.0443	0.352
Alkalinity	NA	5/5	NA	313 - 430	NA	Undefined	NA	430	NA	430
Ammonia	NA	11/22	NA	0.1 - 4.5	NA	Undefined	NA	0.55	NA	4.3
Chloride	NA	20/25	NA	1.4 - 50	NA	Undefined	NA	50	NA	50
Fluoride	NA	25/25	NA	0.2 - 1.3	NA	Lognormal	NA	0.75	NA	1.3
Nitrate	NA	9/11	NA	0.012 - 0.3	AN	Normal	NA	0.19	NA	0.29
Nitrate/Nitrite	NA	1/4	NA	0.07	NA	Undefined	NA	0.07	NA	0.07
Phenols	NA	11/21	NA	0.007 - 0.03	NA	Lognormal	NA	0.02	NA	0.03
Phosphate	NA	1/1	NA	0.191	NA	Undefined	NA	0.191	NA	0.191
Phosphorous	NA	12/20	NA	0.026 - 0.18	NA	Lognormal	NA	0.11	NA	0.18
Sulfate	NA	22/25	NA	3 - 175	NA	Normal	NA	75.7	NA	136
Sulfide	NA	0/4	NA	ND	NA	Undefined	NA	ND	NA	ND
TKN	NA	10/14	NA	0.178 - 4.34	NA	Undefined	NA	4.34	NA	4.34
TOC	NA	4/7	NA	1.15 - 9	NA	Undefined	NA	9	NA	9
TOX	NA	3/16	NA	0.011 - 0.126	NA	Undefined	NA	0.126	NA	0.126
TON	NA	10/20	NA	0.1 - 1.35	NA	Undefined	NA	0.34	NA	0.34
Total Solids	NA	1/1	NA	452	NA	Undefined	NA	452	NA	452
Total Dissolved Solids	1/1	NA	433	NA	Undefined	NA	433	NA	433	NA

TABLE A.I-1 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Dissolved Oxygen	NA	22/22	NA	1 - 9.2	NA	Lognormal	NA	5.4	NA	9.2
pH (std units)	NA	29/20	NA	6.9 - 7.7	NA	Lognormal	NA	7.3	NA	7.5
Specific Conductivity (μmho/cm)	NA	30/30	NA	470 - 1170	NA	Lognormal	NA	726	NA	955

[a]95% UCL on Median
[b]Min detect since 95% UCL on Median is a non-detect.
A - Analyzed but data not usable. See "Characterization of Background Water Quality for Streams and Groundwater," Appendix C for description of data quality.
ND - Not Detected
NA - Not Analyzed

TABLE A.I-2

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS FOR GROUNDWATER AT FEMP (GREAT MIAMI AQUIFER)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Radionuclides (pCi/L)										
Cesium-137	0/1	2/70	ND	5.8 - 6.7	Undefined	Undefined	ND	5.8[b]	ND	5.8
Neptunium-237	1/1	4/81	0.12	0.25 - 0.62	Undefined	Undefined	0.120	0.25[b]	0.120	0.25
Plutonium-238	0/1	6/62	ND	0.022 - 0.089	Undefined	Undefined	ND	0.022	ND	0.048
Plutonium-239/240	1/1	5/59	0.042	0.016-0.083	Undefined	Undefined	0.042	0.016	0.042	0.05
Radium-226	10/11	56/105	0.20 - 2	0.071 - 2	Normal	Lognormal	1.4	0.59	1.90	1.5
Radium-228	0/13	23/106	ND	1.0 - 52	Undefined	Undefined	ND	1	ND	3.6
Ruthenium-106	01/1	0/76	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Strontium-90	0/1	4/87	ND	0.65 - 4.8	Undefined	Undefined	ND	0.65	ND	0.65
Technetium-99	0/1	2/99	ND	22 - 26	Undefined	Undefined	ND	22[b]	ND	22
Thorium-228	4/10	37/101	0.2 - 0.4	0.075 - 2.9	Undefined	Undefined	0.2	0.075	0.4	0.77
Thorium-230	2/11	44/98	0.1 - 0.29	0.18 - 2.5	Undefined	Lognormal	0.1	0.4	0.29	0.89
Thorium-232	3/11	9/71	0.1 - 0.3	0.1 - 0.77	Undefined	Undefined	0.1	0.1	0.3	0.23
Uranium-234	9/11	65/98	0.23 - 0.9	0.14 - 1.3	Normal	Lognormal	0.64	0.38	0.9	0.8
Uranium-235/236	0/10	5/97	ND	0.094 - 0.26	Undefined	Undefined	ND	0.094[b]	ND	0.094
Uranium-238	9/11	42/104	0.23 - 0.9	0.14 - 0.93	Normal	Lognormal	0.64	0.3	0.9	0.64

TABLE A.I-2 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Radionuclides (μg/L)										
Thorium, Total	NA	3/50	NA	0.97 - 2.1	NA	Undefined	NA	0.97	NA	0.97
Uranium, Total	10/12	69/115	0.1 - 0.8	0.1 - 3.1	Normal	Undefined	0.6	0.41	0.8	1.2
Inorganics (mg/L)										
Aluminum	11/27	4/15	0.062 - 0.175	0.06 - 0.225	Lognormal	Undefined	0.0772	0.06	0.153	0.225
Antimony	0/10	0/11	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Arsenic	27/89	7/16	0.002 - 0.55	0.0011 - 0.0294	Undefined	Undefined	0.002	0.0089	0.261	0.0126
Barium	97/110	14/16	0.021 - 0.82	0.0368 - 0.768	Undefined	Lognormal	0.0611	0.768	0.669	0.768
Beryllium	6/23	0/16	0.001 - 0.0023	ND	Undefined	Undefined	0.001	ND	0.0022	ND
Cadmium	16/106	3/16	0.002 - 0.01	0.0022 - 0.0135	Undefined	Undefined	0.002	0.0022	0.006	0.0135
Calcium	110/111	16/16	63.6 - 181	78 - 162	Lognormal	Lognormal	102	127	136	159
Chromium	35/111	2/16	0.008 - 0.0441	0.0067 - 0.0211	Undefined	Undefined	0.008	0.0067	0.03	0.0211
Cobalt	0/23	1/15	ND	0.0086	Undefined	Undefined	ND	0.0086	ND	0.0086
Copper	31/110	2/16	0.01 - 0.176	0.011 - 0.035	Undefined	Undefined	0.01	0.0113	0.083	0.0354
Cyanide	01/12	0/16	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Iron	74/111	14/15	0.007 - 5.42	0.312 - 5.5	Undefined	Normal	1.25	3.56	4.14	5.5
Lead	13/79	1/15	0.0016 - 0.029	0.002	Undefined	Undefined	0.0016	0.002	0.009	0.002
Magnesium	111/111	16/16	15.7 - 46	20.1 - 39	Lognormal	Normal	28.3	32.3	37.8	38.5
Manganese	83/106	16/16	0.002 - 0.916	0.0043 - 0.904	Undefilned	Lognormal	0.05	0.05	0.78	0.904
Mercury	10/104	0/15	0.0002 - 0.001	ND	Undefined	Undefined	0.0002	ND	0.0004	ND
Molybdenum	21/90	0/8	0.004 - 0.04	ND	Undefined	Undefned	0.004	ND	0.025	ND

TABLE A.I-2 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
Nickel	14/111	1/16	0.012 - 0.0279	0.0514	Undefined	Undefined	0.012	0.0514	0.023	0.0514
Potassium	94/101	13/16	0.664 - 4.03	0.648 - 1.96	Lognormal	Lognormal	1.9	1.42	3.32	1.96
Selenium	6/79	1/15	0.00105 - 0.006	0.00075	Undefined	Undefined	0.0011	0.00075	0.004	0.00075
Silicon	4/4	1/1	2.6 - 3.46	5.81	Undefined	Undefined	3.46	5.81	3.46	5.81
Silver	13/110	1/16	0.0031 - 0.034	0.0117	Undefined	Undefined	0.0031	0.0117	0.0138	0.0117
Sodium	106/106	16/16	1.96 - 101	3.08 - 50.4	Lognormal	Normal	22.7	29.1	55	47.2
Thallium	0/16	0/15	ND	ND	Undefined	Undefined	ND	ND	ND	ND
Vanadium	12/27	2/16	0.01 - 0.0244	0.00076 - 0.0117	Undefined	Undefined	0.0122	0.0076	0.0231	0.0117
Zinc	10/23	2/14	0.0068 - 0.133	0.0087 - 0.021	Undefined	Undefined	0.0758	0.0087	0.097	0.021
Alkalinity	NA	21/21	NA	210 - 430	NA	Normal	NA	349	NA	422
Ammonia	NA	40/101	NA	0.045 - 12.6	NA	Undefined	NA	0.045	NA	4.2
Chloride	NA	98/110	NA	0.02 - 120	NA	Undefined	NA	23	NA	73
Fluoride	NA	110/113	NA	0.1 - 1.9	NA	Lognormal	NA	0.43	NA	0.89
Nitrate	NA	52/64	NA	0.014 - 24.9	NA	Undefined	NA	1.88	NA	11.4
Nitrate/Nitrite	NA	4/12	NA	0.02 - 4.1	NA	Undefined	NA	0.051	NA	4.1
Phenols	NA	46/94	NA	0.00575 - 0.091	NA	Undefined	NA	0.03	NA	0.03
Phosphorous	NA	75/102	NA	0.01 - 3.08	NA	Undefined	NA	0.247	NA	0.64
Sulfate	NA	101/110	NA	2.79 - 321	NA	Undefined	NA	54.4	NA	197
Sulfide	NA	0/6	NA	ND	NA	Undefined	NA	ND	NA	ND
TKN	NA	38/53	NA	0.1 - 4.74	NA	Lognormal	NA	1.48	NA	3.3
TOC	NA	17/25	NA	1 - 4.25	NA	Normal	NA	2.23	NA	3.87

TABLE A.I-2 (Continued)

	Frequency of Detection		Range of Detection		Distribution		Representative Concentration		95th Percentile	
	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered
TOX	NA	13/85	NA	0.012 - 0.12	NA	Undefined	NA	0.052	NA	0.052
TON	NA	61/86	NA	0.075 - 2.75	NA	Undefined	NA	0.9	NA	0.9
Total Solids	NA	18/18	NA	330 - 773	NA	Lognormal	NA	546	NA	711
Total Dissolved Solids	20/20	NA	320 - 673	NA	Normal	NA	522	NA	658	NA
Dissolved Oxygen	NA	93/93	NA	0.1 - 10.4	NA	Lognormal	NA	3.07	NA	7.84
pH (std units)	NA	131/131	NA	6.3 - 7.9	NA	Normal	NA	7.3	NA	7.7
Specific Conductivity (μmhos/cm)	NA	131/131	NA	370 - 1890	NA	Lognormal	NA	659	NA	928

(a) 95% UCL on Median
(b) Min detect since 95% UCL on Median is non-detect.
ND - Not Detected
NA - Not Analyzed

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TABLE A.I-3

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS
IN SURFACE SOIL AT FEMP
(0 - 1.5 FEET)

Constituents	Frequency of Detection	Range of Detection	Distribution	Representative Concentration	95th Percentile
Radionuclides (pCi/g)					
Actinium-227	1/30	0.09	Undefined	0.09[b]	0.09
Cesium-137	30/30	0.16 - 0.71	Lognormal	0.44	0.71
Lead-210	30/30	0.53 - 1.30	Lognormal	1.01	1.30
Neptunium-237	NA	NA	NA	NA	NA
Plutonium-238	NA	NA	NA	NA	NA
Plutonium-239/240	NA	NA	NA	NA	NA
Protactinium-231	0/30	ND	Undefined	ND	ND
Radium-224	30/30	0.54 - 0.93	Undefined	0.86	0.90
Radium-226	30/30	0.85 - 1.48	Normal	1.22	1.42
Radium-228	30/30	0.80 - 1.27	Normal	1.10	1.25
Ruthenium-106	0/30	ND	Undefined	ND	ND
Strontium-90	4/30	0.30 - 0.46	Undefined	0.30	0.42
Technetium-99	0/30	ND	Undefined	ND	ND
Thorium-228	29/30	0.68 - 1.43	Normal	1.12	1.43
Thorium-230	29/30	0.90 - 2.01	Normal	1.50	1.97
Thorium-232	30/30	0.64 - 1.52	Lognormal	1.08	1.36
Uranium-234	30/30	0.67 - 1.31	Lognormal[c]	1.04	1.24
Uranium-235/236	27/30	0.03 - 0.20	Lognormal	0.09	0.16
Uranium-238	30/30	0.85 - 1.33	Lognormal	1.08	1.24
Radionuclides (mg/kg)					
Thorium, Total	30/30	5.84 - 13.9	Lognormal	9.85	12.4
Uranium, Total	30/30	2.56 - 4.03	Lognormal	3.27	3.73
Inorganics (mg/kg)					
Aluminum	30/30	5350 - 15,000	Lognormal	8810	11,900
Antimony	0/22	ND	Undefined	ND	ND

TABLE A.I-3 (Continued)

Constituents	Frequency of Detection	Range of Detection	Distribution	Representative Concentration	95th Percentile
Arsenic	26/30	3.40 - 9.20	Normal	5.56	8.20
Barium	29/29	31.0 - 94.1	Lognormal	67.7	94.1[d]
Beryllium	1/30	0.60	Undefined	0.6[b]	0.60
Cadmium	6/30	0.52 - 0.95	Undefined	0.52[b]	0.87
Calcium	30/30	856 - 5340	Lognormal	2580	4340
Chromium	30/30	6.70 - 17.7	Lognormal	11.6	15.5
Cobalt	30/30	4.30 - 16.5	Normal	10.8	14.2
Copper	27/30	3.20 - 17.3	Normal	8.60	14.1
Cyanide	12/30	0.14 - 0.29	Undefined	0.15[a]	0.27
Iron	30/30	9370 - 24,900	Normal	16200	21,700
Lead	28/30	11 - 36.4	Lognormal	1.00	26.4
Magnesium	30/30	1020 - 3590	Lognormal	1930	2780
Manganese	29/29	189 - 1500	Lognormal	814	1350
Mercury	1/30	0.30	Undefined	0.30[b]	0.30
Molybdenum	0/30	ND	Undefined	ND	ND
Nickel	29/30	5.80 - 22.7	Lognormal	12.7	20.9
Potassium	29/30	374 - 1590	Normal	834	1230
Selenium	1/30	0.72	Undefined	0.72[b]	0.72
Silicon	29/29	480 - 2230	Lognormal	1280	1800
Silver	0/30	ND	Undefined	ND	ND
Sodium	27/30	26.9 - 54.7	Normal	37.5	51.1
Thallium	1/30	0.58	Undefined	0.58[b]	0.58
Vanadium	30/30	11.3 - 32.7	Lognormal	22.3	30.4
Zinc	30/30	29.4 - 70.0	Lognormal	44.6	59.6

[a]95% UCL on Median
[b]Min detect since 95% UCL on Median is a non-detect
[c]Based on the Kolmagorov/Smirnoff Test
[d]Maximum detect since 95% UCL on median is greater than the maximum positive hit
ND - Not Detected
NA - Not Analyzed/Not Applicable

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TABLE A.I-4

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS
IN SUBSURFACE SOIL AT FEMP
(BELOW 1.5 FEET)

Constituents	Frequency of Detection	Range of Detection	Distribution	Representative Concentration	95th Percentile
Radionuclides (pCi/g)					
Actinium-227	3/51	0.06 - 0.10	Undefined	0.06[b]	0.10
Cesium-137	0/51	ND	Undefined	ND	ND
Lead-210	43/51	0.31 - 0.97	Normal	0.56	0.85
Neptunium-237	NA	NA	NA	NA	NA
Plutonium-238	NA	NA	NA	NA	NA
Plutonium-239/240	NA	NA	NA	NA	NA
Protactinium-231	0/51	ND	Undefined	ND	ND
Radium-224	51/51	0.28 - 1.07	Lognormal	0.66	1.01
Radium-226	51/51	0.59 - 1.61	Undefined	0.88[a]	1.47
Radium-228	51/51	0.36 - 1.37	Lognormal	0.85	1.31
Ruthenium-106	0/51	ND	Undefined	ND	ND
Strontium-90	2/51	0.44 - 0.56	Undefined	0.44[b]	0.44
Technetium-99	0/51	ND	Undefined	ND	ND
Thorium-228	49/50	0.47 - 1.39	Lognormal	0.92	1.38
Thorium-230	48/51	0.07 - 2.34	Normal	1.24	1.91
Thorium-232	44/50	0.35 - 1.35	Undefined[c]	0.85[a]	1.26
Uranium-234	48/51	0.48 - 1.30	Undefined[c]	0.73[a]	1.04
Uranium-235/236	46/51	0.03 - 0.20	Undefined[c]	0.06[a]	0.15
Uranium-238	48/51	0.60 - 1.23	Normal	0.85	1.12
Radionuclides (mg/kg)					
Thorium, total	50/50	2.83 - 12.3	Normal	7.70	11.1
Uranium, total	48/51	1.81 - 3.69	Lognormal	2.63	3.69
Inorganics (mg/kg)					
Aluminum	51/51	3250 - 16,100	Lognormal	9740	16,100
Antimony	0/37	ND	Undefined	ND	ND
Arsenic	44/51	1.60 - 14.5	Lognormal	5.65	9.57

TABLE A.I-4 (Continued)

Constituents	Frequency of Detection	Range of Detection	Distribution	Representative Concentration	95th Percentile
Barium	51/51	13.7 - 134	Lognormal	67.2	119
Beryllium	15/50	0.48 - 0.68	Undefined	0.48[b]	0.62
Cadmium	6/51	0.47 - 1.30	Undefined	0.47[b]	0.91
Calcium	51/51	3310 - 335,000	Undefined	108,000[a]	150,000
Chromium	51/51	4.50 - 22.4	Lognormal	12.6	20.7
Cobalt	51/51	3.60 - 17.9	Lognormal	10.0	15.7
Copper	50/51	6.80 - 24.3	Lognormal	13.4	20.0
Cyanide	1/51	0.17	Undefined	0.17[b]	0.17
Iron	51/51	8970 - 30,700	Lognormal	20,100	30,700[d]
Lead	47/51	3.00 - 18.4	Lognormal	9.52	15.6
Magnesium	51/51	2930 - 54,100	Normal	24,200	42,600
Manganese	51/51	251 - 1750	Undefined	534[a]	1300
Mercury	1/51	0.29	Undefined	0.29[b]	0.29
Molybdenum	1/51	2.70	Undefined	2.70[b]	2.70
Nickel	51/51	8.50 - 41.9	Lognormal	21.9	34.3
Potassium	51/51	340 - 2180	Lognormal	1180	1980
Selenium	0/51	ND	Undefined	ND	ND
Silicon	51/51	449 - 1850	Lognormal	1060	1590
Silver	0/51	ND	Undefined	ND	ND
Sodium	51/51	53.8 - 345	Undefined	131[a]	285
Thallium	3/51	0.49 - 0.55	Undefined	0.49[b]	0.49
Vanadium	51/51	8.40 - 44.5	Undefined	18.5[a]	37.8
Zinc	51/51	27.3 - 101	Lognormal	48.2[a]	82.0

[a]95% UCL on Median
[b]Min detect since 95% UCL on Median is a non-detect.
[c]Based on the Kolmagorov/Smirnoff Test.
[d]Maximum detect since 95% UCL on median is greater than the maximum positive detect.

ND - Not Detected
NA - Not Analyzed/Not Applicable

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TABLE A.I-5

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS IN SURFACE WATERS AT FEMP (GREAT MIAMI RIVER)

Constituents	Frequency of Detection		Range of Detection		Representative Concentration[a]	
	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Radionuclides (pCi/L)						
Cesium-137	0/4	0/2	ND	ND	ND	ND
Neptunium-237	0/5	0/3	ND	ND	ND	ND
Plutonium-238	0/5	0/3	ND	ND	ND	ND
Plutonium-239/240	0/5	0/3	ND	ND	ND	ND
Radium-226	1/4	0/3	0.12 - 0.41	ND	0.41	ND
Radium-228	1/5	0/3	2.2	ND	2.2	ND
Ruthenium-106	0/4	0/2	ND	ND	ND	ND
Strontium-90	0/5	0/3	ND	ND	ND	ND
Technetium-99	0/5	0/2	ND	ND	ND	ND
Thorium-228	3/5	2/3	0.54 - 0.62	0.79 - 0.86	0.62	0.86
Thorium-230	4/5	2/3	0.26 - 0.36	0.38 - 0.62	0.36	0.62
Thorium-232	0/5	1/3	ND	0.27	ND	0.27
Uranium-234	5/5	3/3	0.3 - 1.1	0.44 - 0.5	1.1	0.5
Uranium-235/236	1/5	0/3	0.25	ND	0.25	ND
Uranium-238	3/5	3/3	0.59 - 0.76	0.44 - 0.5	0.76	0.5
Radionuclides (μg/L)						
Thorium, Total	NA	NA	NA	NA	NA	NA
Uranium, Total	5/5	3/3	0.74 - 1.4	0.52 - 1.1	1.4	1.1
Inorganics (mg/L)						
Aluminum	2/2	2/2	1.30 - 1.89	0.086 - 0.115	1.89	0.115
Antimony	0/2	0.2	ND	ND	ND	ND
Arsenic	2/4	2/3	0.0018 - 0.0036	0.0016 - 0.0024	0.0036	0.0024
Barium	5/5	4/4	0.049 - 0.1	0.075 - 0.1	0.1	0.1
Beryllium	0/2	0/2	ND	ND	ND	ND
Cadmium	2/5	0/4	0.006 - 0.0098	ND	0.0098	ND
Calcium	5/5	4/4	61.2 - 77	66 - 79.3	77	79.3
Chromium	0/5	0/4	ND	ND	ND	ND
Cobalt	0/2	0/2	ND	ND	ND	ND
Copper	1/5	0/4	0.0118	ND	0.0118	ND
Cyanide	2/2	2/2	0.0030 - 0.0052	0.0022 - 0.0041	0.0052	0.0041
Iron	5/5	0/4	0.164 - 2.23	ND	2.23	ND
Lead	1/4	0.3	0.010	ND	0.010	ND
Magnesium	5/5	4/4	21.5 - 33.9	27.2 - 34.9	33.9	34.9

TABLE A.I-5 (Continued)

Constituents	Frequency of Detection		Range of Detection		Representative Concentration[a]	
	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Manganese	5/5	0/4	0.009 - 0.082	ND	0.082	ND
Mercury	0/4	0/4	ND	ND	ND	ND
Molybdenum	1/5	0/4	0.02	ND	0.02	ND
Nickel	2/5	0/4	0.11 - 0.023	ND	0.023	ND
Potassium	5/5	4/4	2.3 - 6.08	3.4 - 6.2	6.08	6.2
Selenium	0/4	0/3	ND	ND	ND	ND
Silicon	2/2	2/2	4.47 - 5.90	2.5 - 3.04	5.9	3.04
Silver	0/5	0/3	ND	ND	ND	ND
Sodium	5/5	4/4	12.9 - 75.8	27.1 - 77.2	75.8	77.2
Thallium	0/2	0/2	ND	ND	ND	ND
Vanadium	0/2	0/2	ND	ND	ND	ND
Zinc	1/2	0/2	0.0446	ND	0.0446	ND
Alkalinity	2/2	NA	232 - 245	NA	245	NA
Ammonia	2/4	NA	0.1 - 0.11	NA	0.11	NA
Chloride	5/5	NA	18 - 325	NA	325	NA
Fluoride	5/5	NA	0.27 - 0.9	NA	0.9	NA
Nitrate	5/5	NA	0.4 - 6.58	NA	6.58	NA
Phenols	1/4	NA	0.01	NA	0.01	NA
Phosphorous	5/5	NA	0.12 - 1.1	NA	1.1	NA
Sulfate	4/4	NA	45.6 - 138	NA	138	NA
Sulfide	0/1	NA	ND	NA	ND	NA
TKN	2/2	NA	1.11 - 1.84	NA	1.84	NA
TOC	2/2	NA	1.97 - 3.06	NA	3.06	NA
TOX	4/5	NA	0.019 - 0.25	NA	0.25	NA
TON	5/5	NA	0.2 - 1.73	NA	1.73	NA

[a]For small data sets (≤ 7 samples) the representative concentration is the same as the 95th percentile.

ND Not detected
NA Not analyzed

TABLE A.I-6

BACKGROUND DATA FOR RADIONUCLIDES
IN SEDIMENTS AT FEMP (GREAT MIAMI RIVER)

Constituents	Frequency of Detection	Range of Detection	Representative Concentration[a]
Radionuclides (pCi/g)			
Cesium-137	0/3	ND	ND
Neptunium-237	0/4	ND	ND
Plutonium-238	0/4	ND	ND
Plutonium-239/240	0/4	ND	ND
Radium-226	3/3	0.4 - 0.57	0.57
Radium-228	0/3	ND	ND
Ruthenium-106	0/3	ND	ND
Strontium-90	0/3	ND	ND
Technetium-99	0/4	ND	ND
Thorium-228	0/4	ND	ND
Thorium-230	2/4	0.7 - 0.72	0.72
Thorium-232	1/3	0.8	0.8
Uranium-234	2/4	0.6 - 0.88	0.88
Uranium 235/236	0/4	ND	ND
Uranium-238	1/4	1.0	1.0
Radionuclides (mg/kg)			
Uranium, Total	2/3	1.3 - 3	3
Thorium, Total	1/1	3	3

[a]For small data sets (≤ 7 samples) the representative concentration is the same as the 95th percentile.

ND Not detected
NA Not analyzed

TABLE A.I-7

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS IN SURFACE WATERS AT FEMP (PADDYS RUN)

Constituents	Frequency of Detection		Range of Detection		Representative Concentration[a]	
	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Radionuclides (pCi/L)						
Cesium-137	1/1	1/1	3.1	3.9	3.1	3.9
Neptunium-237	NA	1/1	NA	0.42	NA	0.42
Plutonium-238	0/1	0/1	ND	ND	ND	ND
Plutonium-239/240	1/1	1/1	0.093	0.29	0.093	0.29
Radium-226	1/2	0/2	0.35	ND	0.35	ND
Radium-228	1/2	0/2	2.1	ND	2.1	ND
Ruthenium-106	0/1	0/1	ND	ND	ND	ND
Strontium-90	1/1	1/1	0.96	0.86	0.96	0.86
Technetium-99	0/2	0/2	ND	ND	ND	ND
Thorium-228	0/2	0/2	ND	ND	ND	ND
Thorium-230	0/2	1/2	ND	0.28	ND	0.28
Thorium-232	0/2	0/2	ND	ND	ND	ND
Uranium-234	1/1	2/2	0.7	0.45 - 0.7	0.7	0.7
Uranium-235/236	0/2	0/2	ND	ND	ND	ND
Uranium-238	2/2	2/2	0.6 - 0.73	0.48 - 0.5	0.73	0.5
Radionuclides (μg/L)						
Thorium, Total	0/1	0/1	ND	ND	ND	ND
Uranium, Total	2/2	2/2	0.90 - 1.1	0.81 - 1.1	1.1	1.1
Inorganics (mg/L)						
Aluminum	2/2	1/2	0.195 - 0.64	0.132	0.64	0.132
Antimony	0/2	0/2	ND	ND	ND	ND
Arsenic	0/2	0/2	ND	ND	ND	ND
Barium	2/2	2/2	0.034 - 0.0534	0.0304 - 0.0526	0.0534	0.0526
Beryllium	0/1	0/1	ND	ND	ND	ND
Cadmium	0/2	0/2	ND	ND	ND	ND
Calcium	2/2	2/2	86.6 - 107	85.3 - 107	107	107
Chromium	0/2	0/2	ND	ND	ND	ND
Cobalt	0/1	0/1	ND	ND	ND	ND
Copper	0/1	0/1	ND	ND	ND	ND
Cyanide	0/2	0/1	ND	ND	ND	ND
Iron	2/2	0/2	0.129 - 0.513	ND	0.513	ND
Lead	0/2	0/2	ND	ND	ND	ND
Magnesium	2/2	2/2	20.7 - 27.8	20.4 - 27.7	27.8	27.7

TABLE A.I-7 (Continued)

Constituents	Frequency of Detection		Range of Detection		Representative Concentration[a]	
	Unfiltered	Filtered	Unfiltered	Filtered	Unfiltered	Filtered
Manganese	1/1	1/1	0.035	0.0257	0.035	0.0257
Mercury	0/2	0/2	ND	ND	ND	ND
Molybdenum	0/2	0/2	ND	ND	ND	ND
Nickel	0/1	0/1	ND	ND	ND	ND
Potassium	2/2	2/2	2.12 - 3.58	1.96 - 3.5	3.58	3.5
Selenium	0/2	0/2	ND	ND	ND	ND
Silicon	2/2	2/2	2.95 - 3.36	2.43 - 3.01	3.36	3.01
Silver	0/2	0/2	ND	ND	ND	ND
Sodium	2/2	2/2	13 - 18.2	12.9 - 18.3	18.2	18.3
Thallium	0/1	0/1	ND	ND	ND	ND
Vanadium	0/1	0/1	ND	ND	ND	ND
Zinc	0/1	0/1	ND	ND	ND	ND
Alkalinity	2/2	NA	235 - 342	NA	342	NA
Ammonia	1/2	NA	0.0387	NA	0.0387	NA
Chloride	2/2	NA	27.8 - 31.6	NA	31.6	NA
Fluoride	2/2	NA	0.022 - 0.22	NA	0.22	NA
Nitrate	1/2	NA	1.66	NA	1.66	NA
Phenols	0/2	NA	ND	NA	ND	NA
Phosphorous	1/1	NA	0.228	NA	0.228	NA
Sulfate	2/2	NA	46.8 - 55.7	NA	55.7	NA
Sulfide	0/2	NA	ND	NA	ND	NA
TKN	1/2	NA	0.288	NA	0.288	NA
TOC	2/2	NA	1.68 - 5.35	NA	5.35	NA
TOX	1/2	NA	0.011	NA	0.011	NA
TON	1/2	NA	0.288	NA	0.288	NA

[a]For small data sets (≤ 7 samples) the representative concentration is the same as the 95th percentile.

ND Not detected
NA Not analyzed

TABLE A.I-8

BACKGROUND DATA FOR RADIONUCLIDES AND CHEMICALS IN SEDIMENTS AT FEMP (PADDYS RUN)

Constituents	Frequency of Detection	Range of Detection	Representative Concentration[a]
Radionuclides (pCi/g)			
Radium-226	3/3	0.4 - 0.5	0.5
Radium-228	0/3	ND	ND
Radionuclides (mg/kg)			
Uranium, Total	3/3	1 - 3	3
Inorganics (mg/kg)			
Aluminum	1/1	1970	1970
Arsenic	1/1	7	7
Barium	1/1	21	21
Beryllium	1/1	0.5	0.5
Cadmium	1/1	3.7	3.7
Calcium	1/1	25,900	25,900
Chromium	1/1	18.3	18.3
Cobalt	1/1	4.9	4.9
Copper	1/1	10.8	10.8
Iron	1/1	6700	6700
Magnesium	1/1	18,300	18,300
Manganese	1/1	411	411
Mercury	0/1	ND	ND
Molybdenum	0/1	ND	ND
Nickel	1/1	13.7	13.7
Potassium	1/1	307	307
Selenium	0/1	ND	ND
Silver	0/1	ND	ND
Sodium	1/1	197	197
Thallium	0/1	ND	ND
Vanadium	1/1	12.4	12.4
Zinc	1/1	13.5	13.5

[a]For small data sets (≤ 7 samples) the representative concentration is the same as the 95th percentile.
ND - Not detected
NA - Not analyzed

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TABLE A.7-8

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE SOILS ON-PROPERTY RME FARMER

Constituents	Representative Background Co Su	Background Risk to Surface Soil[a]	Cancer Risks - OU5[a] Area of Highest Concentration
Radionuclides[b]			
Cs_{137+1d}	4.4E-01	4.2E-05	1.0E-04
Pu_{238}	1.0E+00	9.8E-07	3.8E-06
Ra_{226+8d}	1.2E+00	3.1E-04	9.1E-03
Th_{230}	1.5E+00	9.1E-08	3.9E-06
$Th_{232+10d}$	1.1E+00	3.8E-04	9.5E-03
U_{234}	1.0E+00	1.9E-07	7.9E-05
$U_{235/236}$	9.1E-02	9.1E-07	3.7E-04
U_{238+2d}	1.1E+00	1.9E-06	1.0E-03
Chemical Carcinogens[b]			
arsenic	5.6E+00	1.0E-04	2.3E-04
beryllium	6.0E-01	1.7E-05	4.8E-05

Notes:
[a] Background risks and cancer risk summary based on on-property RME farmer.
[b] Values in units of pCi/g for radionuclides and mg/Kg for chemicals.

TABLE A.7-9

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE SOILS ON-PROPERTY RME FARMER

Constituents	Representative Background Co St	Background HQ to Surface Soil	Hazard Quotients - OU5 Area of Highest Concentration
Toxicants	**(mg/Kg)**		
cyanide	1.5E-01	6.5E-02	8.6E-01
arsenic	5.6E+00	2.0E-01	4.6E-01
barium	7.0E+01	2.1E-02	7.1E-02
beryllium	6.0E-01	9.9E-03	2.9E-02
cadmium	5.2E-01	1.1E-01	1.2E+00
chromium vi	1.2E+01	3.7E-02	1.4E-01
cobalt	1.1E+01	9.1E-03	1.2E-02
copper	8.6E+00	1.0E-01	5.2E-01
magnesium	1.9E+03	2.5E-01	6.5E+00
manganese	8.1E+02	4.1E-01	9.0E-01
mercury	3.0E-01	1.2E+01	2.7E+00
nickel	1.3E+01	3.8E-02	7.8E-02
selenium	7.2E-01	9.8E-03	1.2E-02
thallium	5.8E-01	3.1E-01	3.8E-01
vanadium	2.2E+01	2.3E-02	3.1E-02
zinc	4.3E+01	1.6E+00	5.2E+00
total uranium	3.3E+00	2.4E-06	6.8E-04

Notes:
[a] Background hazard quotients and summary based on on-property RME farmer.

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TABLE A.7-10

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN GROUNDWATER ON-PROPERTY RME FARMER

	Representative		Cancer Risks – OU5[a]	
			Backgro Risk t Ground W	Area of Highest Concentration
Radionuclides (pCi/L)				
Ra_{226+5d}	5.1E-01	2.4E-05		7.7E-04
U_{234}	1.1E+00	1.0E-06		2.9E-03
$U_{235/236}$	9.4E-02	8.7E-08		1.3E-04
U_{238+2d}	6.4E-01	1.0E-06		4.8E-03
Chemicals (mg/L)				
arsenic	2.0E-03	2.4E-01		1.2E+00
beryllium	2.0E-03	1.7E-02		1.0E-03

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

TABLE A.7-11

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN GROUNDWATER ON-PROPERTY RME FARMER

Constituents	Representative Back Conc Grou	Background HQs to Ground Water[a]	Hazard Quotients-OU5[a] Area of Highest Concentration
Toxicants (mg/L)			
arsenic	8.9E-03	1.1E+00	1.2E+00
beryllium	1.0E-03	8.3E-03	1.0E-03
chromium vi	8.0E-03	7.2E-02	9.9E-01
copper	1.1E-02	5.4E-02	1.4E+00
magnesium	3.2E+01	1.8E-01	8.0E+00
manganese	7.8E-02	3.3E-02	1.0E+00
uranium-total	6.0E-01	6.6E+00	1.0E+02

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

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TABLE A.7-12

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BAC CONCENTRATIONS OF CONSTITUENTS DETECTED IN PERCHED GROUNDWATER FOR THE ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Perched Water	Background Risk to Perched Water[a]	Cancer Risks - OU5[a] Production Area Perched Water
Radionuclides (pCi/L)			
Pu_{238}	7.5E-02	8.2E-07	1.0E-05
Ra_{226+5d}	5.1E-01	1.9E-05	8.0E-05
Th_{230}	6.8E-01	4.4E-07	9.6E-07
$Th_{232+10d}$	2.0E-01	1.7E-06	2.4E-05
U_{234}	6.0E-01	4.7E-07	7.8E-03
U_{238+2d}	5.1E-01	7.1E-07	1.7E-02
Np_{237}	1.6E-01	1.8E-06	2.2E-05
Sr_{90}	2.0E+00	3.6E-06	6.3E-06
Tc_{99}	3.0E+01	1.9E-06	1.2E-04
Chemicals (mg/L)			
arsenic	1.9E-02	9.1E-04	6.7E-04
beryllium	1.8E-03	2.7E-04	1.3E-03

Notes:

[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

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TABLE A.7-13

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN PERCHED GROUNDWATER, ON-PROPERTY RME FARMER

Constituents	Representative Background Concentration Perched Water	Background Risk to Perched Water[a]	Cancer Risks - OU5[a] Production Area Perched Water
Toxicants (mg/L)			
arsenic	1.9E-02	1.7E+00	1.3E+00
barium	4.5E-01	1.8E-01	1.1E-01
beryllium	1.8E-03	1.3E-02	6.1E-02
cadmium	6.0E-03	1.7E-01	4.6E-01
chromium vi	6.0E-03	3.3E-02	6.6E-01
copper	2.9E-02	2.1E-02	2.1E-01
magnesium	5.1E+01	1.5E-01	9.9E-01
manganese	2.1E-02	4.4E-03	5.9E-01
mercury	4.0E-04	3.7E-02	1.9E-02
molybdenum	1.7E-02	9.4E-02	2.4E-01
nickel	2.1E-02	2.9E-02	9.4E-02
silver	1.1E-02	6.0E-02	3.4E-01
uranium-total	1.4E+00	1.4E+01	1.3E+03
vanadium	1.9E-02	7.8E-02	1.1E+00
zinc	3.2E-01	2.9E-02	2.8E-02

Notes:
[a] Background risk calculations and cancer risk summary based on on-property RME farmer.

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TABLE A.7-14

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER FROM PADDYS RUN, EXPLORING YOUTH

Constituents	Representative Concen Surface	Risk to Surface Water [a]	Summary of Cancer Risks – OU5 [a] Area 9 [b]	Area 10 [c]
Radionuclides (pCi/L)				
Ra_{226+5d}	3.5E-01	9.1E-10	NA	4.4E-09
Ra_{228+1d}	2.1E+00	4.6E-09	NA	3.2E+00
Sr_{90+1d}	9.6E-01	7.6E-10	NA	NA
Th_{230}	2.8E-01	7.8E-11	7.0E-10	1.2E-10
U_{234}	7.0E-01	2.5E-10	4.2E-07	3.9E-09
U_{238+2d}	7.3E-01	4.5E-10	7.3E-07	8.5E-09

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Exposure concentrations based on measured data for surface water from Pilot Plant Drainage Ditch.
[c] Exposure concentrations based on measured data for surface water from the Storm Sewer Outfall Ditch (SSOD) and Paddys Run.
NA – Not applicable. Constituent is not CPC for this area..

TABLE A.7-15

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF PADDYS RUN, EXPLORING YOUTH

Constituents	Representative Concen Surface	HQs to Surface Water [a]	Summary of Hazard Quotients – OU5 [a] Area 9 [b]	Area 10 [c]
Toxicants (mg/L)				
barium	5.4E-02	1.0E-04	4.2E-04	NA
magnesium	2.8E+01	1.3E-03	3.1E-03	NA
manganese	3.5E-02	1.7E-04	NA	4.0E-03

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Exposure concentrations based on measured data for surface water from Pilot Plant Drainage Ditch.
[c] Exposure concentrations based on measured data for surface water from the Storm Sewer Outfall Ditch (SSOD) and Paddys Run.
NA – Not applicable. Constituent is not CPC for this area..

TABLE A.7-16

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SEDIMENT EXPLORING YOUTH

Constituents	Representative Concentra Sedime	Risk to Sediment[a]	Range of Cancer Risks – OU5[a] Minimum	Maximum
Radionuclides (pCi/g)				
Ra_{226+5d}	4.3E-01	1.8E-07	1.7E-07 [b]	4.5E-06 [c]
Chemicals (mg/Kg)				
arsenic	7.0E+00	7.4E-08	2.9E-08 [d]	1.2E-07 [e]
beryllium	5.0E-01	5.1E-06	2.1E-05 [d]	3.1E-05 [e]

Notes:
[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.
[b] Based on measured data for sediments in Sewage Treatment Plant (Area 6).
[c] Based on measured data for sediments in Production Area (Area 2).
[d] Based on measured data for sediments in Paddys Run and SSOD (Area 10).
[e] Exposure concentrations based on measured data for sediments from Area 7.

TABLE A.7-17

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SEDIMENT EXPLORING YOUTH

Constituents	Representative Concentra Sedime	HQs to Sediment	Range of Hazard Quotients – OU5 [a] Minimum	Maximum
Toxicants (mg/Kg)				
aluminum	3.9E+03	ND	ND	ND
arsenic	7.0E+00	8.2E-04	3.1E-04 [b]	1.4E-03 [c]
beryllium	5.0E-01	1.4E-03	5.6E-03 [b]	8.3E-03 [c]
chromium VI	1.8E+01	1.2E-03	6.6E-04 [b]	6.6E-04 [b]
copper	1.5E+01	8.4E-06	5.7E-06 [b]	5.7E-06 [b]
manganese	4.2E+02	1.4E-02	1.1E-02 [c]	5.4E-02 [d]
nickel	2.0E+01	9.0E-05	3.0E-05 [b]	3.0E-05 [b]
uranium-total	1.7E+00	1.6E-03	1.0E-02 [e]	4.5E-01 [c]
vanadium	1.4E+01	6.0E-04	8.3E-04 [b]	8.3E-04 [b]

Notes:

[a] Background risks and cancer risk summary based on calculated risks to trespassing youth.

[b] Based on measured data for sediments in Paddys Run and SSOD (Area 10).

[c] Exposure concentrations based on measured data for sediments from Area 7.

[c] Based on measured data for sediments in Production Area (Area 2).

[d] Based on measured data for sediments from north in Production Area (Area 4).

[e] Based on measured data for sediments in Sewage Treatment Plant (Area 6).

ND – No data for toxicity assessment.

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TABLE A.7-18

INCREMENTAL LIFETIME CANCER RISKS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF GREAT MIAMI RIVER, GREAT MIAMI RIVER USER

Constituents	Representative Concen Surface	Risk to Surface Water [a]	Cancer Risks – OU5 [a,b] Current Scenario	Future Scenario
Radionuclides (pCi/L)				
Ra_{226+5d}	4.1E-01	4.5E-06	3.1E-05	NA
Ra_{228+1d}	2.2E+00	1.9E-05	4.0E-05	3.5E-06
Th_{230}	6.2E-01	6.0E-07	6.7E-07	7.1E-08
U_{234}	1.1E+00	1.0E-06	8.6E-07	6.9E-05
U_{238+2d}	7.6E-01	1.3E-06	1.4E-06	7.7E-06

Notes:
[a] Background risks and cancer risk summary based on calculated risks to Great Miami River user.
[b] Highest representative concentrations for the Effluent Outfall or the Confluence with Paddys Run are used.
NA = not applicable, constituent is not a CPC for that area

TABLE A.7-19

HAZARD QUOTIENTS FROM EXPOSURE TO BACKGROUND CONCENTRATIONS OF CONSTITUENTS DETECTED IN SURFACE WATER OF GREAT MIAMI RIVER, GREAT MIAMI RIVER USER

Constituents	Representative Concen Surface	HQs to Surface Water [a]	Hazard Quotients – OU5 [a,b] Current Scenario	Future Scenario
Toxicants (mg/L)				
arsenic	3.6E-03	6.1E-05	1.0E-04	4.3E-06
barium	1.0E-01	8.4E-02	1.9E-01	NA
cadmium	1.0E-02	2.6E+00	4.7E+00	NA
cyanide	5.2E-03	1.2E-06	4.8E-06	2.8E-06
lead	1.0E-02	0.0E+00	ND	ND
magnesium	3.5E+01	2.0E-01	2.7E-01	1.0E-01
manganese	8.2E-02	3.4E-02	2.4E-01	1.1E-02
nickel	2.3E-02	1.4E-01	1.6E-01	NA
uranium-total	1.0E-03	1.1E-02	3.1E-02	1.9E+00

Notes:
[a] Background hazard quotients and summary based on calculated risks to Great Miami River User.
NA – Not applicable. Constituent is not CPC for this area..
ND – no toxicity values available for developing HQs and Risk values.
[b] Highest representative concentrations for the Effluent Outfall or the Confluence with Paddys Run are used.

A.II.0 STATISTICAL PROCEDURES AND EQUATIONS FOR FEMP OPERABLE UNIT 5 REMEDIAL INVESTIGATION REPORT

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A.II.1.1 INTRODUCTION

Appendix A Attachment II presents the statistical procedures used to describe and evaluate the environmental data collected for the OU-5 Remedial Investigation (RI). The statistical methods included in Appendix A Attachment II are employed in order to determine the following:

1. Summary statistics (e.g., range, mean, standard deviation) which describe environmental contaminant concentrations at FEMP.
2. Exposure point concentrations (e.g., the 95 percent upper confidence limit on the mean) for the baseline risk assessment.
3. Comparisons of background concentrations to parameter concentrations detected in site environmental samples (i.e., samples collected in areas potentially contaminated by manufacturing/waste disposal activities at Fernald).

The statistical methods presented in Appendix A Attachment II were based on:

1. Gilbert, Richard O., Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold Company. New York, New York. 1987.
2. Snedecor and Cochran. Statistical Methods. The Iowa State University Press. 1980.
3. U.S. EPA 530/SW-89-026. "Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities." 1989.
4. U.S. EPA 530/R-93-003. "Statistical Training Course for Ground-Water Monitoring Data Analysis." July, 1992.

The statistical approach and methods presented in Appendix A Attachment II are in agreement with the approach and methods suggested in the Fernald Work Plan Addendum for Risk Assessment. Appendix A Attachment II presents the equations used to calculate descriptive statistics and exposure point concentrations for the OU-5 RI. Appendix A provides an overview of the statistical approach used by OU-5 to evaluate data in terms of the comparison of site environmental data to background measurements.

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A.II.1.2 LIMIT OF DETECTION

In the chemical analysis of environmental samples, some analytes may be present at concentrations which are below the sample quantitation limit (SQL) of the analytical procedure. The results are generally reported as not detected (rather than zero), and the appropriate limit of detection is given. The amount of data that are below the detection limit plays an important role in selecting the method of addressing the limit of detection problem. The nondetects may be replaced with the (SQL) divided by two prior to statistical analysis. Clearly, if all the observations are nondetect results, no statistical analysis is warranted. In addition, field duplicate results are averaged and counted as one sample for use in statistical analysis.

A.II.1.2.1 Calculation of Descriptive Statistics and Exposure Point Concentrations

Prior to statistical analysis of an environmental data set, the data set must be analyzed to determine whether the data were drawn from an underlying normal distribution, a log-normal distribution or neither. A number of statistical evaluations may be used to determine which, if either, of the distributions are exhibited by a given data set. As recommended by the EPA, the Shapiro and Wilk "W-test" (for sample sets ≤ 50) and the Shapiro-Francia "W-test" (for sample sets > 50) will be used to determine whether the data are normally or log-normally distributed (EPA, 1993).

A.II.1.2.1.1 The Shapiro and Wilk "W-test"

The Shapiro and Wilk W-test (Gilbert, 1987) is an effective method for determining whether a data set has been drawn from an underlying normal distribution. In addition, by conducting the Shapiro and Wilk W-test on the log-transformed data, the test may be used to determine whether the data has been drawn from an underlying log-normal distribution. The null hypothesis (H_0) that is tested is:

H_O The population has a normal (or log-normal when the data is log-transformed) distribution.

The alternate hypothesis (H_A) is:

H_A The population does not have a normal (or log-normal when the data is log-transformed) distribution.

If H_O is rejected, then H_A is accepted. If H_0 is not rejected, the data set is consistent with the H_0 distribution.

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A "W" statistic (W_{calc}) is computed for a data set (or a log transformed data set) and compared to a test statistic (W_{test}). If $W_{calc} > W_{test}$, then the null hypothesis is not rejected (i.e. the data are assumed to be normally distributed [or log-normally distributed if log transformed data are tested]). If $W_{calc} < W_{test}$, then the null hypothesis is rejected and the alternative hypothesis is accepted (i.e., the data are not assumed to be normally distributed [or not log-normally distributed if log transformed data are tested]).

The following equations present a step-by-step procedure for conducting the W-test. The equation for conducting the W-Test is:

$$W = \frac{1}{d}\left[\sum_{i=1}^{k} a_i \left(x_{[n-i+1]} - x_{[i]}\right)\right]^2$$

- Step 1. Order the n data points from smallest to largest to obtain the sample order statistics:

$$x_1 \le x_2 \le x_3 \le \ldots \le x_n$$

- Step 2. Compute the denominator (d) of the W-test statistic using the n data:

$$d = \sum_{i=1}^{n} (x_i)^2 - \frac{1}{n}\left[\sum_{i=1}^{n} x_i\right]^2$$

- Step 3. Compute k, where:

$$k = \frac{n}{2} \quad \textit{if } n \textit{ is even}$$

- Step 4. Determine the coefficients $a_1, a_2, a_3, \ldots, a_k$ for the sample size n using Table A-1 (Appendix A).

$$k = \frac{n-1}{2} \quad \textit{if } n \textit{ is odd}$$

- Step 5. Compute W_{calc}:

$$W_{calc} = \frac{1}{d}\left[\sum_{i=1}^{k} a_i \left(x_{[n-i+1]} - x_{[i]}\right)\right]^2$$

- Step 6. Determine W_{test} at the α significance level from Table A-2.

- Step 7. Reject H_O at the α significance level if W_{calc} is less than W_{test}.

To test the null hypothesis that the data set has been drawn from an underlying log-normal distribution, transform the data to $y_1, y_2, y_3, \ldots, y_n$ where $y_i = \ln x_i$. Repeat steps 1 through 7 as described in the preceding paragraphs.

<u>Example Calculation:</u>

The data for this example are displayed in Appendix B, Table B-1.

- Step 1. Order the n data points in ascending order as shown in Table B-1:

$$x_1 \le x_2 \le x_3 \cdots \le x_{45} \quad \textit{and}$$
$$y_1 \le y_2 \le y_3 \cdots \le y_{45}$$

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- Step 2. Compute the denominator (d_N) of the W-test statistic:

$$d_N = \sum_{i=1}^{45} (x_i)^2 - \frac{1}{45}\left[\sum_{i=1}^{45} x_i\right]^2 = 12.33 - \frac{1}{45}(22.88)^2 = 0.697$$

Similarly, compute d_L for using the log-transformed data:

$$d_L = \sum_{i=1}^{45} (y_i)^2 - \frac{1}{45}\left[\sum_{i=1}^{45} y_i\right]^2 = 24.73 - \frac{1}{45}(-31.67)^2 = 2.440$$

- Step 3. Compute k, where:

$$k = \frac{(45 - 1)}{2} = 22$$

- Step 4. Find the coefficients $a_1, a_2, a_3, \ldots, a_{22}$ for the sample size 45 using Table A-1.

$$W_{calc} = \frac{1}{d}\left[\sum_{i=1}^{22} a_i\left(x_{[45-i+1]} - x_{[i]}\right)\right]^2$$

$$= \frac{1}{d}[0.3850(x_{45}-x_1) + 0.2651(x_{44}-x_2) + 0.2313(x_{43}-x_3) + 0.2065(x_{42}-x_4)$$
$$+0.1865(x_{41}-x_5) + 0.1695(x_{40}-x_6) + 0.1545(x_{39}-x_7) + 0.1410(x_{38}-x_8)$$
$$+0.1286(x_{37}-x_9) + 0.1170(x_{36}-x_{10}) + 0.1062(x_{35}-x_{11}) + 0.0959(x_{34}-x_{12})$$
$$+0.0860(x_{33}-x_{13}) + 0.0765(x_{32}-x_{14}) + 0.0673(x_{31}-x_{15}) + 0.0584(x_{30}-x_{16})$$
$$+0.0497(x_{29}-x_{17}) + 0.0412(x_{28}-x_{18}) + 0.0328(x_{27}-x_{19}) + 0.0245(x_{26}-x_{20})$$
$$+0.0163(x_{25}-x_{21}) + 0.0081(x_{24}-x_{22})]^2 = \frac{1}{0.697}[0.762]^2 = 0.834$$

- Step 5. Compute W_{calc} for the normal distribution

$$W_{calc} = \frac{1}{2.440}[1.469]^2 = 0.885$$

Similarly, compute W_{calc} for the log-transformed data:

- Step 6. Determine W_{test} for 45 data points at 0.05 significance level from Table A-2. $W_{test} = 0.945$.

- Step 7. Compare W_{test} to W_{calc} for the normal data set and the log-transformed data set. Determine if the null hypotheses are rejected.

  W_{calc} for the normal distribution is less than W_{test} ($0.834 < 0.945$). Therefore, the null hypothesis that the data are drawn from an underlying normal distribution is rejected. W_{calc} for the log-normal distribution is less than W_{test} ($0.885 < 0.945$). Therefore, the null hypothesis that the data are drawn from an underlying log-normal distribution is also rejected. We can conclude that the data are not normally nor log-normally distributed.

A.II.1.2.1.1 <u>The Shapiro-Francia Goodness of Fit Test</u>

The Shapiro-Francia goodness-of-fit test is a modification of the Shapiro and Wilk "W-test" used to test hypotheses when the sample size of a data set exceeds 50. The Shapiro and Francia "W'-test" rejects or does not reject a null hypothesis about a given data set (i.e., that a data set has been drawn from a normal or log-normal distribution). The null hypothesis is:

H_O The population has a normal (log-normal when the data is log-transformed) distribution.

The alternate hypothesis is:

H_A The population does not have a normal (log-normal when the data is log-transformed) distribution.

If H_O is rejected, then H_A is accepted.

A "W'" statistic (W'_{calc}) is computed for a data set (or a log transformed data set) and compared to a test statistic (W'_{test}) (Table A-3, Appendix A). If $W'_{calc} > W'_{test}$, then the null hypothesis is not rejected (i.e., the data are assumed to be normally distributed [or log-normally distributed if log-transformed data are tested]). If $W'_{calc} < W'_{test}$, then the null hypothesis is rejected (i.e., the data are not assumed to be normally distributed [or not log-normally distributed if log transformed data are tested]).

The following presents a step-by-step procedure for conducting the Shapiro-Francia Test.

The W'_{calc} statistic is generated by the formula:

$$W'_{calc} = \frac{\left[\sum m_i x_i\right]^2}{(n-1)s_x^2 \sum (m_i)^2}$$

- Step 1. Order the n data points from smallest to largest:

$$x_1 \le x_2 \le x_3 \le \ldots \le x_n$$

- Step 2. Compute the sample variance $(S_x)^2$ of the data set:

$$S_x^2 = \frac{\sum_{i=1}^{n} (x_i - \bar{x})^2}{n-1} = \textit{the sample variance}$$

- Step 3. Compute [i/(n+1)] where n is the total number of samples and i is the it order data value in the data set.

- Step 4. Determine m_i which denotes the approximate expected value of the it ordered normal quantile. The value m_i can be approximately computed as:

$$m_i = \Phi^{-1} \; at \; \left(\frac{i}{n+1}\right)$$

where Φ^{-1} denotes the inverse of the standard normal distribution with zero mean and unit variance (i.e. sample variance equals one). The m_i values can be determined by locating the z value at i/(n+1) on the normal probability table (Table A-7 - Appendix A).

- Step 5. Compute the square of each normal quantile and sum these values.

- Step 6. Multiply each normal quantile and the corresponding ordered data value. The sum of these values is then calculated.

$$W'_{calc} = \frac{\left[\sum_{i=1}^{n} m_i x_i\right]^2}{(n-1)s^2 \sum_{i=1}^{n} (m_i)^2}$$

- Step 7. Compute W'_{calc}

- Step 8. Determine W'_{calc} at the α significance level from Table A-7.

- Step 9. Reject the H_0 at the α significance level, if the W'_{calc} is less than the W'_{test}.

Example Calculation:

The data for this example are displayed in Table B-2. This table also presents an example format that can be used when conducting the Shapiro-Francia goodness-of-fit test on a data set or a log-transformed data set.

- Step 1. The data were sorted in ascending order with the rank of the ordered data presented in Column 1 while the data values are presented in Column 2 of Table B-2. Column 3 presents the log-transformed data in ascending order.

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- Step 2. The sample variance of the data set and log-transformed data are presented at the bottom of the second and third columns in Table B-2, respectively. These values were calculated as follows:

Sample variance (normal):

$$S_x^2 = \frac{\sum_{i=1}^{81}(x_i - 7.074)^2}{81-1} = 0.630$$

Sample variance (log-normal):

$$S_x^2 = \frac{\sum_{i=1}^{81}(x_i - 1.949)^2}{81-1} = 0.017$$

- Step 3. The results of the calculations of [i/(n+1)] for each data point are presented in Column 4 where i = the rank (Column 1) and n = 81. For example, when the rank equals 2 and n equals 81, then

$$[i/(n+1)] = \frac{2}{81+1} = 0.0244$$

- Step 4. The m_i value is determined by locating the z value at [i/(n+1)] on the normal probability table (Table A-7). For example, if [i/(n+1)] equals 0.0244, then m_i = -1.97. These results for all data values are presented in Column 5 of Table B-2.

- Step 5. The squares of m_i are presented in Column 6 of Table B-2 with the sum of these values presented at the bottom of the column. For example, when m_i = -1.97, m_i^2 = 3.88.

- Step 6. The normal quantile, m_i, times the corresponding data value and log-transformed data value are presented in Columns 7 and 8, respectively. The sum of these values are presented at the bottom of each column.

- Step 7. W'_{calc} for the normal and log-normal distribution can be calculated as follows:

Normal:

$$W_{calc} = \frac{\left[\sum_{i=1}^{81} m_i x_i\right]^2}{(80)s_x^2 \sum_{i=1}^{81} (m_i)^2} = \frac{(55.38)^2}{(80)(0.63)(73.65)} = 0.826$$

Log-normal:

$$W_{calc} = \frac{\left[\sum_{i=1}^{81} m_i y_i\right]^2}{(80)s_y^2 \sum_{i=1}^{81} (m_i)^2} = \frac{(8.50)^2}{(80)(0.017)(73.65)} = 0.721$$

- Step 8. Determine the W'_{test} for 81 data points at the 0.05 significance level from Table A-3. $W'_{test} = 0.985$.

- Step 9. Determine if the null hypothesis is rejected.

  W'_{calc} for the normal distribution is less than W'_{test} ($0.826 < 0.985$), therefore, the null hypothesis (H_0) that the data are drawn from an underlying normal distribution is rejected and H_A is accepted. W'_{calc} for the log-normal is less than W'_{test} ($0.721 < 0.985$) therefore, the null hypothesis (H_0) that the data are drawn from an underlying log-normal distribution is rejected. H_A is accepted. We can conclude that the data are not normally nor log-normally distributed.

A.II.1.3 PROBABILITY PLOTS

If the Shapiro-Wilk W-test or the Shapiro-Francia test reject the null hypothesis (H_0) and the percentage of positive detections is greater than 50%, censored probability plots may be used to determine whether or not the data are drawn from an underlying normal (or log-normal) distribution.

- Step 1. Let X be a variable; $X_1, X_2, \ldots, X_n$ the set of n analytical results. The values of X can be raw data or log-transformed data. Sort the n data in ascending order:

$$X(1), X(2), \ldots, X(n).$$

- Step 2. Compute the cumulative frequency for each distinct value X(i) as [i/(n+1)] x 100.

- Step 3. Plot the distinct pairs [X(i), {i/(n+1)} x 100] values on a probability scale.

If the positive detections achieve linearity on the probability scale, one can conclude that the underlying distribution is approximately normal (Cohen's underlying assumption) (EPA, 1992). Similarly, if the log-transformed positive detections achieve linearity, one can conclude that the underlying distribution is log-normal. Linearity is achieved when the correlation coefficient of the positive detections exceed the critical value in Table A-11. The probability plot correlation coefficient can be calculated by:

$$r = \frac{\sum_{i=1}^{n} X_i M_i - n\overline{XM}}{C_n SD\sqrt{n-1}}$$

where X_i represents the ith smallest ordered concentration and M_i represents the median of the ith order statistic from the standard normal distribution (EPA, 1993). M_i may be approximated by:

$$M_i = \Phi^{-1}(m_i)$$

where Φ^{-1} is the inverse of the standard normal distribution, Cn is calculated by

$$C_n = \sqrt{\sum_{i=1} M_i^2 - n\overline{M^2}}$$

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and m_i can be calculated as follows:

$$m_i = 1 - (0.5)^n \; for \; i = 1$$

$$m_i = \frac{i - 0.375}{n + 0.365} \; for \; i = 2, \ldots, n$$

$$m_i = (0.5)^n \quad for \; i = n$$

A.II.1.4 HOMOGENEITY OF VARIANCE

The analysis of variance procedures used for the comparison of environmental data sets to background are often more sensitive to unequal variances than to departures from normality. Bartlett's Test is an effective method for testing homogeneity of variance, especially when the data are drawn from a non-normal distribution (Snedecor and Cochran, 1980). For the purposes of CPC selection, Bartlett's test will only be employed on data sets in which both background and environmental site data have been shown to be drawn from the same underlying distribution (normal or log-normal) for a particular analyte or compound.

Bartlett's test determines equality or homogeneity of a group of population variances from an underlying normal (or log-normal) distribution. It should be noted that Bartlett's test often reject equality of variances of populations that have long-tailed distributions or distributions with positive kurtosis (Snedecor and Cochran, 1980).

The following equations present a step-by-step procedure for conducting Bartlett's test.

- Step 1. Assume that the data from k areas are available and that there are n_i data points for area i. Compute the k sample variances $S_1^2, \ldots S_k^2$. The sample variance, S^2, is the square of the sample standard deviation and is given by the equation

$$S^2 = \sum_{i=1}^{n} \frac{(X_i - \overline{X})^2}{(n-1)}$$

where $\overline{x}$ is the average of the $X_1, \ldots, X_n$ values. Each variance has associated with it $f_i = n_i - 1$ degrees of freedom.

- Step 2. Calculate the natural log of each variance

$$\ln(S_i^2), \ldots, \ln(S_k^2).$$

- Step 3. Compute the test statistic

$$\chi^2 = f \ln(S_p^2) - \sum_{i=1}^{k} f_i \ln(S_i^2)$$

where f is the total sample size (N) minus the number of groups (k) and S_p is the total variance across areas.

- Step 4. Using the Table A-10, determine the critical value for χ^2 at the 5% significance level and (k-1) degrees of freedom. If the calculated χ^2 is greater than the critical value, the variances are not equal at the 5% significance level and non-parametric tests (e.g. Wilcoxon Rank-Sum or Kruskal-Wallis) must be employed to compare environmental data sets to background.

Example Calculation:

The data from Table B-3 (Appendix B) will be used for this example.

- Step 1. Compute the 2 sample variances S_1^2 (background) and S_2^2 (Site-2). The sample variance, S^2, is the square of the sample standard deviation and is given by the following equations:

$$S_1^2 = \sum_{i=1}^{81} \frac{(X_i - 0.03)^2}{(81-1)} = 0.0001$$

$$S_2^2 = \sum_{i=1}^{81} \frac{(X_i - 7.07)^2}{(81 - 1)} = 0.624$$

Each variance has associated with it $n_i - 1 = 80$ degrees of freedom.

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- Step 2. Take the natural log of each variance:

$$\ln(S_1^2) = \ln(0.0001) = -9.210$$
$$\ln(S_2^2) = \ln(0.624) = -0.472.$$

- Step 3. Compute the test statistic

$$\chi^2 = f\,\ln(S_p^2) - \sum_{i=1} f_i\,\ln(S_i^2)$$

where f is the total sample size minus the number of groups (162-2 = 160) and S_p is the total variance across areas.

- Step 4. Using Table A-10, determine the critical value for χ^2 at the 5% significance level and 1 degree of freedom to be 3.84.

Conclusion: Since the calculated χ^2 is greater than the critical value (1181.5 > 3.84), the variances are not equal at the 5% significance level, and non-parametric tests (e.g. Wilcoxon Rank-Sum or Kruskal-Wallis) must be employed for the comparison of environmental data sets to background.

A.II.1.5 COMPARISON OF STUDY AREA DATA TO BACKGROUND DATA

Several naturally occurring inorganics and radiological constituents were detected in OU-5 environmental media samples. For purposes of describing the nature and extent of contamination and performing the baseline risk assessment for the site, it is necessary to differentiate inorganic and radiological concentrations potentially attributable to manufacturing/waste disposal activities at FEMP from those present as background.

Figure 2-1 is a flow diagram of the approach used to compare background data and site environmental data. Site environmental data are compared to background data using parametric or non-parametric analyses, as appropriate. The statistical methods described in the following paragraphs are used to determine if parameter concentrations detected in site environmental media samples exhibit a statistically significant difference from those detected in background samples.

A.II.1.5.1 The Test of Proportions:

If more than 70% of the of the data are nondetect results, but at least 10% of the observations are positive detections, the Test of Proportions may be used to compare environmental data to

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background data. The Test of Proportions determines whether the proportion of positive detections in the environmental data set differs significantly from the proportion of positive detections reported for background. Generally, if the proportion of detected values is denoted by P, and the sample size is n, then the normal approximation to the binomial distribution is adequate, provided that nP and n(1-P) both are greater than or equal to 5. The following equations present a step-by-step procedure for conducting the Test of Proportions.

- Step 1. Check criterion for using the normal approximation.
  - Determine X, the number of background samples in which the analyte was detected, and Y, the number of environmental samples in which the analyte was detected.
  - Let n_b be the total number of background samples analyzed and n_e be the total number of environmental samples analyzed. Let $n = n_b + n_e$.
  - Estimate the test statistic P by $\mathcal{P} = (X + Y)/n$.
  - Compute $n\mathcal{P}$ and $n(1 - \mathcal{P})$. If both products are ≥ 5, then the normal approximation may be used.
- Step 2. Compute the proportion of detects in the background samples:

$$\mathcal{P}_b = X/n_b$$

- Step 3. Compute the proportion of detects in the environmental samples:

$$\mathcal{P}_e = Y/n_e$$

- Step 4. Compute the standard error of the difference in proportions:

$$S_D = \sqrt{\left(\frac{X+Y}{n_b+n_e}\right)\left(1 - \frac{X+Y}{n_b+n_e}\right)\left(\frac{1}{n_b} + \frac{1}{n_e}\right)}$$

and calculate the Z statistic:

$$Z = \frac{\mathcal{P}_b - \mathcal{P}_e}{S_D}$$

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- Step 5. Compare $|Z|$ to the 95th percentile from the standard normal distribution, 1.645. If $|Z| > 1.645$, there is statistically significant evidence of contamination at the 5% significance level.

Example Calculation:

The data from Table B-3 will be used for this example.

- Step 1. Check criterion for using the normal approximation.
  - Let $n_b = 81$ be the total number of background samples analyzed and $n_e = 81$ be the total number of environmental samples analyzed. Let $n = n_b + n_e = 162$.
  - The number of background samples in which the analyte was detected is 5 ($X = 5$). The number of environmental samples in which the analyte was detected is 30 $Y = 30$).
  - Estimate P with $\mathcal{P} = (X + Y)/n = (5 + 30)/162 = 0.216$.
  - Compute $n\mathcal{P} = 35$ and $n(1 - \mathcal{P}) = 127$. Since both products are ≥ 5, the normal approximation may be used.
- Step 2. Compute the proportion of positive detects in the background samples:

$$\mathcal{P}_b = X/n_b = 5/81 = 0.062$$

- Step 3. Compute the proportion of positive detects in the environmental sample:

$$\mathcal{P}_e = Y/n_e = 30/81 = 0.370$$

- Step 4. Compute the standard error of the difference in proportions, and form the Z statistic:

$$S_D = \sqrt{\left(\frac{X+Y}{n_b+n_e}\right)\left(1-\frac{X+Y}{n_b+n_e}\right)\left(\frac{1}{n_b}+\frac{1}{n_e}\right)} = \sqrt{\left(\frac{35}{162}\right)\left(1-\frac{35}{162}\right)\left(\frac{1}{81}+\frac{1}{81}\right)} = 0.065$$

$$Z = \frac{P_b = P_e}{S_D} = \frac{0.062 - 0.370}{0.065} = -4.738$$

- Step 5. Compare $|Z|$ to the 95th percentile from the standard normal distribution, 1.645. $|Z| = 4.738 > 1.645$, there is statistically significant evidence of contamination at the 5% significance level.

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Analysis of Variance:

To conduct the comparison between the site-related measurements and the background data for a constituent with less than 15 percent nondetects, two tests are used in sequence: an analysis of variance (ANOVA) followed by the 95th percentile test. If either test result rejects the null hypothesis, the constituent may be considered a COPC. The constituent will not be considered as a COPC only if both tests do not reject the null hypothesis (i.e. there is no significant difference between background and site environmental data sets).

Analysis of variance (ANOVA) is widely used in the examination of data sets that are drawn from an underlying normal (or log-normal) distribution (See Shapiro-Wilk or Shapiro-Francia W-tests) and that have homogeneous variances (See Bartlett's Test). A one-way classification ANOVA (t-test for single comparisons) is used to determine whether or not the difference between average concentrations of a parameter detected in environmental samples and background concentrations is statistically significant.

Assume that a site has p areas and that n_i data points (analyte concentrations) are available for the it sampling location. The following equations present a step-by-step procedure for conducting the parametric ANOVA.

Arrange the $N = \sum_{i=1}^{p}$ data points in a data table as follows:

- Step 1. Given the following general data for i=p classes.

Area	Analytical Results	Sum	Mean
1	x_{11}.....x_{1n_i}	X_1	$\overline{X}_1$.
2	.	.	.
3	.	.	.
.	.	.	.
.			
.	.	.	.
u	x_{u1}	X_u	$\overline{X}_u$
.	.	.	

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Area	Analytical Results	Sum	Mean
.	.	.	
.	.	.	
p	x_p.....x_{pnp}	X_p	$\overline{X}_p$
		X	$\overline{X}$

- Step 2. Compute the sums and means of each area (i) as follows:

$$X_i = \sum_{j=1}^{n_i} x_{ij} \text{ , } \sum \textit{ of all } n_i \textit{ observations at location } i$$

$$\overline{X} = \frac{X}{N} \text{ , } \textit{grand mean of all observations}$$

$$\overline{X} = \frac{X_i}{n_i} \text{ , } \textit{average of all } n_i \textit{ observations at location } i$$

$$X = \sum_{i=1}^{p} \sum_{j=1}^{n_i} X_{ij} \text{ , } \textit{grand total of all } n_i \textit{ observations}$$

$$N = \sum_{i=1}^{p} n_i \text{ , } \textit{total number of observations}$$

The grand total and grand mean are shown at the bottom of the last two columns of the table shown on the preceding page.

- Step 3. Compute the sum of squares of differences <u>between</u> the individual area means and the grand mean:

$$SS_{sample} = \sum_{i=1}^{p} n_i\left(\overline{X}_i - \overline{X}\right)^2 = \sum_{i=1}^{p}\left[\frac{X_i^2}{n_i}\right] - \frac{X^2}{N}$$

This sum of squares has (p-1) degrees of freedom associated with it and is a measure of the variability <u>between</u> sampling locations.

- Step 4. Compute the corrected total sum of squares

$$SS_{total} = \sum_{i=1}^{p}\sum_{j=1}^{n_i}\left(X_{ij}-\overline{X}\right)^2 = \sum_{i=1}^{p}\sum_{j=1}^{n_i}\left[\left(X_{ij}\right)^2\right] - \frac{X^2}{N}$$

This sum of squares has (N-1) degrees of freedom associated with it and is a measure of variability in the whole data set.

- Step 5. Compute the sum of squares of differences of observations <u>within</u> areas from the area means. This value is the sum of squares due to error and is obtained by simple subtraction:

$$SS_{Error} = SS_{Total} - SS_{Sample}$$

The sum of squares due to error has associated with it (N-p) degrees of freedom and is a measure of the variability <u>within</u> data sets.

- Step 6. Set up the ANOVA table. The sums of squares and their degree of freedom were obtained from Steps 3 through 5. The mean square quantities are simply obtained by dividing each sum of squares by its corresponding degrees of freedom.

ONE-WAY PARAMETRIC ANOVA TABLE

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Locations	$S_{Ssample}$	MS_{Sample}=P-1	SS_{Sample}/(p-1)	F=MS_{areas}/MS_{Error}
Error (within areas)	SS_{Error}	MS_{Error}=N-p	SS_{Error}/(N-p)	
Total	SS_{Total}	N-1		

- Step 7. To test the hypothesis of equal means for all p areas, compute F = MS_{Sample}/Ms_{Error} (last column in above table). Compare this statistic to the tabulated F statistic with (p-1) and (N-p) degrees of freedom (Table A-8) at the 5% significance level. If the calculated F value exceeds the tabulated value, reject the hypothesis of equal area means. Otherwise, conclude that there is no significant difference between the concentrations at the p sample locations and thus no evidence of contamination.

In the case where the environmental data set exhibits a statistically significant difference from the background data set, the following steps may be followed to determine which areas are contaminated. This is done by comparing each area to background concentrations.

- Step 8. Determine if the significant F is due to differences between background and sample areas (computation of Bonferroni t-statistics).

  Assume that of the p areas, u are background areas and m are environmental sample areas (i.e., u + m = p). Then m differences--need to be computed and tested for statistical significance. If there are more than five downgradient locations, the individual comparisons are done at the significance level of 1%, which may make the experiments significance level greater than 5% (EPA, 1989).

- Step 9. Obtain the total sample size of all u background concentrations.

$$n_b = \sum_{i=1}^{u} n_i$$

- Step 10. Compute the average concentration from the u background locations.

$$\overline{X_b} = \frac{1}{n_b} \sum_{i=1}^{u} \overline{X_i}$$

- Step 11. Compute the m differences between the average concentrations from each environmental sample area and background area.

$$\overline{X_i} - \overline{X_b}\ , \quad i = 1,\ldots,m$$

- Step 12. Compute the standard error of each difference as

$$SE_i = \left[MS_{Error} \left(\frac{1}{n_b} + \frac{1}{n_i} \right) \right]^{\frac{1}{2}}$$

where MS_{Error} is determined from the ANOVA table from Step 6 and n_i is the number of observations at environmental sample area i.

- Step 13. Obtain the t-statistic $t = t_{(N-p),(1-\alpha/m)}$ from Bonferroni's t-table (Table A-9) with $\alpha =$ and (N-p) degrees of freedom.

- Step 14. Compute the m quantities $D_i = (SE_i)(t)$ for each environmental sample area i. If $m > 5$, use the entry for $t_{(N-p),(1-0.01)}$. That is, use the entry at $m = 5$.

  Interpretation of Bonferroni's Statistic:

$$X_i - X_b$$

  if the difference exceeds the value D_i, conclude that the it environmental sample area has significantly higher concentrations than the average background concentrations. Otherwise conclude that the environmental sample location is not contaminated. This exercise may be performed for each of the m environmental sample locations individually. The test is designed so that the overall experimental error is 5% if there are no more than five sampling locations.

  If the number of sample locations is greater than five, the experimental error will be greater than 5%. In this case, the Bonferroni t-test should be modified by doing the individual comparisons at the 1% level.

Example Calculation:

The background soil data will be compared to the environmental data from Table B-2.

- Step 1. See Table B-3

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- Step 2. Compute the sums and means of each sample location (i=2) as follows (see Table B-3):

$$X.. = \sum_{i=1}^{p} \sum_{j=1}^{n_i} X_{ij} \text{ , grand sum of } n_i \text{ observations}$$

$$= \sum_{i=1}^{2} \sum_{j=1}^{81} X_{ij} = 2.09 + 573 = 575.1$$

$$\overline{X} = \frac{X}{N} = \frac{575.1}{162} = 3.55 \rightarrow \textit{grand mean of all observations}$$

$$X_2 = \sum_{j=1}^{81} x_{2j} = 573 \rightarrow \textit{sum of all } n_2 \textit{ observations at Site 2}$$

$$\overline{X_2} = \frac{X_2}{n_2} = \frac{573}{81} = 7.07 \rightarrow \textit{average of all } n_2 \textit{ observations at Site 2}$$

- Step 3. Compute the sum of squares of differences <u>between</u> the individual sample location means and the grand mean (see Table B-3):

$$= \sum_{i=1}^{2} X_i^2 - \frac{X^2}{N} = \left[\frac{(2.09)^2}{81} + \frac{(573)^2}{81}\right] - \frac{(575.1)^2}{162} = 2011.96$$

The degrees of freedom = p-1 = 2-1 = 1.

- Step 4. Compute the corrected total sum of squares (see Table B-3)

$$SS_{total} = \sum_{i=1}^{p} \sum_{j=1}^{n_i} \left(X_{ij} - \overline{X}\right)^2 = \sum_{i=1}^{p} \sum_{j=1}^{n_i} \left[X_{ij}^2\right] - \frac{X^2}{N}$$

$$= \sum_{i=1}^{2} \sum_{j=1}^{n_i} \left[X_{ij}^2\right] - \frac{X^2}{N} = (0.015)^2 + (0.015)^2 + \ldots + (8.8)^2 - \frac{(575.1)^2}{162} = 2062.36$$

The degrees of freedom = N-1 = 162-1 = 161.

- Step 5. Compute SS_{Error} which is the sum of squares due to error and is obtained by simple subtraction:

$$SS_{Error} = SS_{Total} - SS_{Sample} = 2062.36 - 2011.96 = 50.40$$

The degrees of freedom = N-p = 162-2 = 160.

- Step 6. Set up the one-way parametric ANOVA table:

Source of Variation	Sums of Squares	Degrees of Freedom	Mean Squares	F
Between Locations	SS_{sample} = 2011.96 = 6388.02	1	MS_{sample} = 2021.96	F = MS_{areas}/MS_{Error} = 2011.96/0.315
Error (within areas)	SS_{Error} = 50.40	160	MS_{Error} = 50.40/160 = 0.315	
Total	SS_{Total} = 2062.36	161		

- Step 7. The calculated F statistic is 6388.02. The tabulated F value with 1 and 160 degrees of freedom at the $\alpha = 0.05$ level is 3.9 (Table A-8). Since the calculated value exceeds the tabulated value, the hypothesis of equal environmental sample area means must be rejected. Obviously, no post hoc comparisons are necessary for this example since only one environmental area is being compared to background. However, Steps 8 through 14 will be used to demonstrate the computation of Bonferroni t-statistics just as an example.

- Step 8. Determine if the significant F is due to differences between background and sample locations (computation of Bonferroni t-statistics).

  Since there is one background area and one environmental sampling area, p = 1 + 1 = 2. Then only 1 difference needs to be computed and tested for statistical significance.

- Step 9. The total sample size of the background data is $n_b = 81$.

- Step 10. Compute the average concentration from the background data.

$$\overline{X_b} = \frac{2.09}{81} = 0.03$$

- Step 11. Compute the difference between the average concentrations of Site-2 and background.

$$\overline{X_i} - \overline{X_b} = \overline{X_2} - \overline{X_1} = 7.07 - 0.03 = 7.04 \ mg/Kg$$

- Step 12. Compute the standard error of the difference as

$$SE_2 = \sqrt{MS_{Error}\left(\frac{1}{n_b} + \frac{1}{n_i}\right)} = \sqrt{0.315\left(\frac{1}{81} + \frac{1}{81}\right)} = 0.088$$

where MS_{Error} is determined from the ANOVA table from Step 6 and n_i is the number of observations at Site-2.

- Step 13. Obtain the t-statistic $t_{(N-p),(1-\alpha/m)} = 1.65$ from Bonferroni's t-table (Table A-9) with $\alpha = 0.05$ and (160) degrees of freedom.

- Step 14. Compute the quantity $D_2 = (SE_2)(t)$ for Site-2.

$$D_2 = (SE_2)(t) = (0.088)(1.65) = 0.145$$

Thus, we can see that

$$X_2 - X_b = 7.04 > D_2 = 0.145$$

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Interpretation

The F test was significant at the 5% level. The Bonferroni comparison yielded a result greater than the critical value (D_2) of 0.145. Therefore, we can conclude that there is statistically significant evidence of contamination at Site-2.

A.II.2.0 NONPARAMETRIC COMPARISON OF STUDY AREA DATA TO BACKGROUND

The ANOVA technique is one basic approach for comparing environmental measurements to background. However, parametric ANOVA methods make two key assumptions: (1) the environmental measurements are normally (or log-normally) distributed and (2) the group variances are approximately equal. If either of these assumptions are violated, non-parametric tests, such as the Wilcoxon Rank-Sum test, may be used to determine if constituent concentrations significantly exceed background.

Non-parametric tests are conducted using the ranks of the analytical results rather than the analytical results themselves. The Kruskal-Wallis (EPA, 1989) test should be employed when comparing three or more data sets. However, it is not amenable to two-group comparisons (e.g. one environmental data set to background). In these situations, the Mann-Whitney U test (EPA, 1993) (also known as the Wilcoxon Rank-Sum test) should be employed. The Kruskal-Wallis and Wilcoxon Rank-Sum tests are described in the following paragraphs.

A.II.2.1 THE WILCOXON RANK-SUM TEST

When a single environmental data set is being compared to background data and a non-parametric test is needed (i.e., the population is not normally or log-normally distributed), the Kruskal-Wallis test should be replaced with the Wilcoxon Rank-Sum test, also known as the Mann-Whitney U test (EPA, 1993). In general, the Wilcoxon Rank-Sum test should be employed whenever the proportion of nondetects is greater than 15% (but less than 90%). However, in order to provide valid results, the Wilcoxon Rank-Sum test should not be used unless the environmental and background data sets contain at least four samples. The following equations present a step-by-step procedure for conducting the Wilcoxon Rank-Sum test.

- Step 1. Combine the environmental data with the background data and rank the ordered values from 1 to A.II. Assume there are n environmental samples and m background samples so that N = m + n.

$$W = \sum_{i=1}^{n} E_i - \frac{1}{2}n(n + 1)$$

- Step 2. Compute the Wilcoxon statistic W:

  where E_i are the ranks of the environmental samples (Large values of the statistic W give evidence of contamination at the environmental sample locations).

- Step 3. Compute an approximate Z-score. To find the critical value of W, a normal approximation to its distribution is used. The expected value and standard deviation of W under the null hypothesis (i.e., no contamination exists) are given by the formulas

$$E(W) = \frac{1}{2}mn; \qquad SD(W) = \sqrt{\frac{1}{12}mn(N+1)}$$

  An approximate Z-score for the Wilcoxon Rank-Sum test may be calculated by the following equations:

$$Z = \frac{W - E(W) - \frac{1}{2}}{SD(W)}$$

The factor of 1/2 in the numerator serves as a continuity correction since the discrete distribution of the statistic W is being approximated by the continuous normal distribution. If n,m > 10 and ties are present, an adjustment to the approximate Z-score must be made:

$$Z_{RS} = \frac{W - E(W) - \frac{1}{2}}{SD'(W)}$$

where: $$SD' = \left(\frac{mn}{12} \left[N + 1 - \frac{\sum_{j=1}^{g} t_j(t_j^2 - 1)}{N(N-1)} \right] \right)^{\frac{1}{2}}$$

g = the number of tied groups and t_j is the number of tied data in the jth group.

- Step 4. For a one-tailed 0.05 significance level test for H_0 versus the H_A (i.e. the measurements from population 1 tend to exceed those from population 2), reject H_0 and accept H_A if $Z_{rs} \geq Z_{(1-\alpha)}$. For a one-tailed α significance level test for H_0 versus the H_A that the measurements from population 2 tend to exceed those from population 1, reject H_0 and accept H_A if $Z_{rs} \leq -Z_{(1-\alpha)}$.

Example Calculation:

The data for this example are presented in Table B-5.

- Step 1. Combine the environmental data with the background data and rank the ordered values from 1 to 162 as shown in Table B-5.

- Step 2. Compute the Wilcoxon statistic W:

$$W = \sum_{i=1}^{n} E_i - \frac{1}{2}n(n+1) = 5751 - \frac{1}{2}(81)(82) = 2430$$

- Step 3. Compute an approximate Z-score. The expected value and standard deviation of W under the null hypothesis of no contamination are given by the formulas

$$E(W) = \frac{1}{2}(81)(81) = 3280.5; \qquad SD(W) = \sqrt{\frac{1}{12}(81)(81)(163)} = 298.5$$

An approximate Z-score for the Wilcoxon Rank-Sum Test then follows as:

$$Z = \frac{W - E(W) - \frac{1}{2}}{SD(W)} = \frac{2430 - 3280.5 - 0.5}{298.5} = -2.851 .$$

- Step 4. Compare the approximate Z-score to the upper 95th percentile of the standard normal distribution, $Z_{0.05} = 1.645$. Since the approximate Z-score is greater than 1.645, the null hypothesis may be rejected at the 1 percent significance level, suggesting that there is statistically significant evidence that the populations have different means.

A.II.2.2 THE 95TH PERCENTILE TEST

The 95th percentile test determines if any sample measurement (not the mean, UCL, or any other summary statistic) at the site exceeds the 95th percentile computed for the background data set. The 95th percentile for the background data set can be computed as follows:

A. Normal Distribution: The 95th percentile of a normal distribution can be approximated by computing:

$$x_{95} = \bar{x} + z_{0.95}$$

where $\bar{x}$ is the sample mean and $z_{0.95}$ is the 95th quantile of the standard normal distribution (Gilbert, 1987).

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B. Lognormal Distribution: The 95th percentile of a lognormal distribution can be approximated by computing:

$$x_{95} = \exp\left(\bar{y} + z_{0.95} s_y\right)$$

where $\bar{y}$ is the sample mean of the log-transformed data, s_y is the standard deviation of the log-transformed data and $z_{0.95}$ is the 95th quantile of the standard normal distribution (Gilbert, 1987).

C) Undefined Distribution: The 95th percentile of a lognormal distribution can be calculated by the following steps:

- Step 1. Rank all of the background data points from smallest to largest.

- Step 2. Calculate the rank of the 95th percentile:

$$R = 0.95n$$

If R is not an integer, then round the rank to the next highest integer.

- Step 3. Determine the value for R (the 95th percentile) from the ordered data.

A.II.2.2.1 Representative Concentration for a Normal Distribution (Upper One-sided 95% Confidence Limit for the Arithmetic Mean)

The 100(1-α) Upper Confidence Limit ($UCL_{100(1-\alpha)}$) of the population mean (μ) is often used as a descriptive statistic for environmental data. When $\alpha = 0.05$, the 95 percent upper confidence limit (one-tailed test) may be calculated as follows:

$$UCL_{0.95} = \bar{x} + t_{0.95,n-1} \frac{S_x}{\sqrt{n}}$$

where:

$$\bar{\chi} = \frac{1}{n}\sum_{i=1}^{n} x_i = \textit{arithmetic mean}$$

$$S_x = \sqrt{\frac{\sum_{i=1}^{n}(x_i-\bar{x})^2}{n-1}} = \textit{the sample standard deviation}$$

$$t_{0.95,n-1} = \textit{Value from t-distribution (Table A-4)}$$

It should be noted that the 95 percent confidence interval for a second sample of size n drawn from the same population will most likely not be the same as that for the first sample. In theory if an interval estimate is calculated for the means of a very large set of samples of size n, the true population mean will be within 95 percent of this limit.

Example Calculation:

The data from Table B-2 will be used for this example.

- Step 1. The one-tailed upper 95% confidence limit for the data presented in Table B-2 may be calculated as follows:

$$UCL_{0.95} = \bar{x} + t_{0.95,80}\ \frac{S_x}{\sqrt{81}}$$

where:

$$\bar{x} = \frac{1}{81}\sum_{i=1}^{81} x_i = 7.07$$

$$S_x = \sqrt{\frac{\sum_{i=1}^{81}(x_i - 7.07)^2}{80}} = 0.794$$

- Step 2. Using Table A-4, interpolate between n=60 and n=120 to determine that $t_{0.95,80} = 1.666$. The 95% upper confidence limit is determined by substituting the calculated values:

$$UCL_{0.95} = 7.07 + 1.666\left(\frac{0.794}{\sqrt{81}}\right) = 7.22\ mg/Kg.$$

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A.II.2.2.2 Representative Concentration for a Log-normal Distribution (Upper One-sided 95% Confidence Limit for the Geometric Mean)

The following formula may be used to calculate the upper 95% confidence interval ($UCL_{95\%}$) for the geometric mean (x_g):

$$UCL_{0.95} = \exp\left[\bar{y} + 0.5\,(S_y)^2 + \frac{S_y\,H_{0.95,n}}{\sqrt{n}}\right]$$

where: $\bar{y}$ = arithmetic mean of the log-transformed data, $y = \ln(x)$

S_y = standard deviation of y

$H_{0.95,n}$ = factor from Table A-5 for sample size n

Example Calculation:

The log-transformed data from Table B-1 are used for this example.

The upper 95% confidence limit for the geometric mean is calculated as follows:

$$UCL_{0.95} = \exp\left[\bar{y} + 0.5\,(S_y)^2 + \frac{S_y\,H_{0.95,45}}{\sqrt{44}}\right]$$

- Step 1. Calculate $\bar{y}$ and S_y where:

$$\bar{y} = \frac{1}{45}\sum_{i=1}^{45} y_i = -0.766\ mg/Kg$$

and

$$S_y = \sqrt{\frac{\sum_{i=1}^{45}\left[y_i-(-0.704)\right]^2}{44}} = 0.235\ mg/Kg$$

- Step 2. Using Table A-5, determine that $H_{0.95,45} = 1.741$ by interpolating between 40 and 45 degrees of freedom.

- Step 3. The upper 95% confidence limit for the geometric mean is determined by substituting the values from Step 1 and Step 2 into the following equation:

$$UCL_{0.95} = \exp\left[\bar{y} + 0.5(S_y)^2 + \frac{S_y\, H_{0.95,n}}{\sqrt{n-1}}\right]$$

$$= \exp\left[-0.704 + 0.5(0.235)^2 + \frac{(0.235)(1.741)}{\sqrt{44}}\right]$$

$$= \exp[-0.615] = 0.541 \ mg/Kg$$

A.II.2.2.3 Representative Concentration for An Undefined Distribution (95th Percentile)

The 95th percentile for the background distribution can be computed as follows:

- Step 1. Rank all of the background data points from smallest to largest.

- Step 2. Calculate the rank of the 95th percentile:

$$R = 0.95n$$

If R is not an integer, then round the rank to the next highest integer.

- Step 3. Determine the value for R (the 95th percentile) from the ordered data.

SUPPLEMENT B

ENVIRONMENTAL DATA TABLES

TABLE A-1

Coefficients a_i for the Shapiro-Wilk W Test for Normality

i \ n	31	32	33	34	35	36	37	38	39	40
1	0.4220	0.4188	0.4156	0.4127	0.4096	0.4068	0.4040	0.4015	0.3989	0.3964
2	0.2921	0.2898	0.2876	0.2854	0.2834	0.2813	0.2794	0.2774	0.2755	0.2737
3	0.2475	0.2462	0.2451	0.2439	0.2427	0.2415	0.2403	0.2391	0.2380	0.2368
4	0.2145	0.2141	0.2137	0.2132	0.2127	0.2121	0.2116	0.2110	0.2104	0.2098
5	0.1874	0.1878	0.1880	0.1882	0.1883	0.1883	0.1883	0.1881	0.1880	0.1878
6	0.1641	0.1651	0.1660	0.1667	0.1673	0.1678	0.1683	0.1686	0.1689	0.1691
7	0.1433	0.1449	0.1463	0.1475	0.1487	0.1496	0.1505	0.1513	0.1520	0.1526
8	0.1243	0.1265	0.1284	0.1301	0.1317	0.1331	0.1344	0.1356	0.1366	0.1376
9	0.1066	0.1093	0.1118	0.1140	0.1160	0.1179	0.1196	0.1211	0.1225	0.1237
10	0.0899	0.0931	0.0961	0.0988	0.1013	0.1036	0.1056	0.1075	0.1092	0.1108
11	0.0739	0.0777	0.0812	0.0844	0.0873	0.0900	0.0924	0.0947	0.0967	0.0986
12	0.0585	0.0629	0.0669	0.0706	0.0739	0.0770	0.0798	0.0824	0.0848	0.0870
13	0.0435	0.0485	0.0530	0.0572	0.0610	0.0645	0.0677	0.0706	0.0733	0.0759
14	0.0289	0.0344	0.0395	0.0441	0.0484	0.0523	0.0559	0.0592	0.0622	0.0651
15	0.0144	0.0206	0.0262	0.0314	0.0361	0.0404	0.0444	0.0481	0.0515	0.0546
16	0.0000	0.0068	0.0131	0.0187	0.0239	0.0287	0.0331	0.0372	0.0409	0.0444
17	-	-	0.0000	0.0062	0.0119	0.0172	0.0220	0.0264	0.0305	0.0343
18	-	-	-	-	0.0000	0.0057	0.0110	0.0158	0.0203	0.0244
19	-	-	-	-	-	-	0.0000	0.0053	0.0101	0.0146
20	-	-	-	-	-	-	-	-	0.0000	0.0049

i \ n	41	42	43	44	45	46	47	48	49	50
1	0.3940	0.3917	0.3894	0.3872	0.3850	0.3830	0.3808	0.3789	0.3770	0.3751
2	0.2719	0.2701	0.2684	0.2667	0.2651	0.2635	0.2620	0.2604	0.2589	0.2574
3	0.2357	0.2345	0.2334	0.2323	0.2313	0.2302	0.2291	0.2281	0.2271	0.2260
4	0.2091	0.2085	0.2078	0.2072	0.2065	0.2058	0.2052	0.2045	0.2038	0.2032
5	0.1876	0.1874	0.1871	0.1868	0.1865	0.1862	0.1859	0.1855	0.1851	0.1847
6	0.1693	0.1694	0.1695	0.1695	0.1695	0.1695	0.1695	0.1693	0.1692	0.1691
7	0.1531	0.1535	0.1539	0.1542	0.1545	0.1548	0.1550	0.1551	0.1553	0.1554
8	0.1384	0.1392	0.1398	0.1405	0.1410	0.1415	0.1420	0.1423	0.1427	0.1430
9	0.1249	0.1259	0.1269	0.1278	0.1286	0.1293	0.1300	0.1306	0.1312	0.1317
10	0.1123	0.1136	0.1149	0.1160	0.1170	0.1180	0.1189	0.1197	0.1205	0.1212
11	0.1004	0.1020	0.1035	0.1049	0.1062	0.1073	0.1085	0.1095	0.1105	0.1113
12	0.0891	0.0909	0.0927	0.0943	0.0959	0.0972	0.0986	0.0998	0.1010	0.1020
13	0.0782	0.0804	0.0824	0.0842	0.0860	0.0876	0.0892	0.0906	0.0919	0.0932
14	0.0677	0.0701	0.0724	0.0745	0.0765	0.0783	0.0801	0.0817	0.0832	0.0846
15	0.0575	0.0602	0.0628	0.0651	0.0673	0.0694	0.0713	0.0731	0.0748	0.0764
16	0.0476	0.0506	0.0534	0.0560	0.0584	0.0607	0.0628	0.0648	0.0667	0.0685
17	0.0379	0.0411	0.0442	0.0471	0.0497	0.0522	0.0546	0.0568	0.0588	0.0608
18	0.0283	0.0318	0.0352	0.0383	0.0412	0.0439	0.0465	0.0489	0.0511	0.0532
19	0.0188	0.0227	0.0263	0.0296	0.0328	0.0357	0.0385	0.0411	0.0436	0.0459
20	0.0094	0.0136	0.0175	0.0211	0.0245	0.0277	0.0307	0.0335	0.0361	0.0386
21	0.0000	0.0045	0.0087	0.0126	0.0163	0.0197	0.0229	0.0259	0.0288	0.0314
22	-	-	0.0000	0.0042	0.0081	0.0118	0.0153	0.0185	0.0215	0.0244
23	-	-	-	-	0.0000	0.0039	0.0076	0.0111	0.0143	0.0174
24	-	-	-	-	-	-	0.0000	0.0037	0.0071	0.0104
25	-	-	-	-	-	-	-	-	0.0000	0.0035

Source: Gilbert, 1987.

TABLE A-3

Percent Points of the Normal Probability Plot Correlation Coefficient for n=3(1)50(5)100

n	.01	.025	.05
41	.958	.967	.973
42	.959	.967	.973
43	.959	.967	.973
44	.960	.968	.974
45	.961	.969	.974
46	.962	.969	.974
47	.963	.970	.975
48	.963	.970	.975
49	.964	.971	.977
50	.965	.972	.978
55	.967	.974	.980
60	.970	.976	.981
65	.972	.977	.982
70	.974	.978	.983
75	.975	.979	.984
80	.976	.980	.985
85	.977	.981	.985
90	.978	.982	.985
95	.979	.983	.986
100	.981	.984	.987

Source: EPA, 1993.

TABLE A-4

Quantiles of the t distribution (Values of t Such That 100p% of the Distribution is Less Than t_p)

Degrees of Freedom	$t_{0.60}$	$t_{0.70}$	$t_{0.80}$	$t_{0.90}$	$t_{0.95}$	$t_{0.975}$	$t_{0.990}$	$t_{0.995}$
1	.325	.727	1.376	3.078	6.314	12.706	31.821	63.657
2	.289	.617	1.061	1.886	2.920	4.303	6.965	9.925
3	.277	.584	.978	1.638	2.353	3.182	4.541	5.841
4	.271	.569	.941	1.533	2.132	2.776	3.747	4.604
5	.267	.559	.920	1.476	2.015	2.571	3.365	4.032
6	.265	.553	.906	1.440	1.943	2.447	3.143	3.707
7	.263	.549	.896	1.415	1.895	2.365	2.998	3.499
8	.262	.546	.889	1.397	1.860	2.306	2.896	3.355
9	.261	.543	.883	1.383	1.833	2.262	2.821	3.250
10	.260	.542	.879	1.372	1.812	2.228	2.764	3.169
11	.260	.540	.876	1.363	1.796	2.201	2.718	3.106
12	.259	.539	.873	1.356	1.782	2.179	2.681	3.055
13	.259	.538	.870	1.350	1.771	2.160	2.650	3.012
14	.258	.537	.868	1.345	1.761	2.145	2.624	2.977
15	.258	.536	.866	1.341	1.753	2.131	2.602	2.947
16	.258	.535	.865	1.337	1.746	2.120	2.583	2.921
17	.257	.534	.863	1.333	1.740	2.110	2.567	2.898
18	.257	.534	.862	1.330	1.734	2.101	2.552	2.878
19	.257	.533	.861	1.328	1.729	2.093	2.539	2.861
20	.257	.533	.860	1.325	1.725	2.086	2.528	2.845
21	.257	.532	.859	1.323	1.721	2.080	2.518	2.831
22	.256	.532	.858	1.321	1.717	2.074	2.508	2.819
23	.256	.532	.858	1.319	1.714	2.069	2.500	2.807
24	.256	.531	.857	1.318	1.711	2.064	2.492	2.797
25	.256	.531	.856	1.316	1.708	2.060	2.485	2.787
26	.256	.531	.856	1.315	1.706	2.056	2.479	2.779
27	.256	.531	.855	1.314	1.703	2.052	2.473	2.771
28	.256	.530	.855	1.313	1.701	2.048	2.467	2.763
29	.256	.530	.854	1.311	1.699	2.045	2.462	2.756
30	.256	.530	.854	1.310	1.697	2.042	2.457	2.750
40	.255	.529	.851	1.303	1.684	2.021	2.423	2.704
60	.254	.527	.848	1.296	1.671	2.000	2.390	2.660
120	.254	.526	.845	1.289	1.658	1.980	2.358	2.617
∞	.253	.524	.842	1.282	1.645	1.960	2.326	2.576

Source: Gilbert, 1987.

TABLE A-6

Tolerance Factors (k) for One-Sided Normal Tolerance Intervals With Probability Level (Confidence Factor) γ=0.95 and Coverage P=95%

n	k	n	k
3	7.655	75	1.972
4	5.145	100	1.924
5	4.202	125	1.891
6	3.707	150	1.868
7	3.399	175	1.850
8	3.188	200	1.836
9	3.031	225	1.824
10	2.911	250	1.814
11	2.815	275	1.806
12	2.736	300	1.799
13	2.670	325	1.792
14	2.614	350	1.787
15	2.566	375	1.782
16	2.523	400	1.777
17	2.486	425	1.773
18	2.543	450	1.769
19	2.423	475	1.766
20	2.396	500	1.763
21	2.371	525	1.760
22	2.350	550	1.757
23	2.329	575	1.754
24	2.309	600	1.752
25	2.292	625	1.750
30	2.220	650	1.748
35	2.166	675	1.746
40	2.125	700	1.744
45	2.092	725	1.742
50	2.065	750	1.740
55	2.036	775	1.739
60	2.017	800	1.737
65	2.000	825	1.736
70	1.986	850	1.734
		875	1.733
		900	1.732
		925	1.731
		950	1.729
		975	1.728
		1000	1.727

Source: EPA, 1989.

TABLE A-7

Standard Normal Curve Areas (cont.) $\Phi(z) = P(Z \leq z)$

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9278	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

Source: DEVORE, 1982.

TABLE A-9

95th PERCENTILES OF THE BONFERRONI t-STATISTICS, t(ν, α/m)

where ν = degrees of freedom associated with the mean squares error
m = number of comparisons
α = 0.05, the experimentwise error level

ν \ m	1 α/m 0.05	2 0.025	3 0.0167	4 0.0125	5 0.01
4	2.13	2.78	3.20	3.51	3.75
5	2.02	2.57	2.90	3.17	3.37
6	1.94	2.45	2.74	2.97	3.14
7	1.90	2.37	2.63	2.83	3.00
8	1.86	2.31	2.55	2.74	2.90
9	1.83	2.26	2.50	2.67	2.82
10	1.01	2.23	2.45	2.61	2.76
15	1.75	2.13	2.32	2.47	2.60
20	1.73	2.09	2.27	2.40	2.53
30	1.70	2.04	2.21	2.34	2.46
∞	1.65	1.96	2.13	2.24	2.33

Source: EPA, 1989.

DRAFT

TABLE B-1
FERNALD ENVIRONMENTAL SOIL DATA FOR COMPOUND X (n = 45)

i	xi	ln[xi]	x_i^2	$(\ln[x_i])^2$
1	0.23	−1.470	0.05	2.16
2	0.31	−1.171	0.10	1.37
3	0.32	−1.139	0.10	1.30
4	0.43	−0.844	0.18	0.71
5	0.44	−0.821	0.19	0.67
6	0.44	−0.821	0.19	0.67
7	0.44	−0.821	0.19	0.67
8	0.44	−0.821	0.19	0.67
9	0.44	−0.821	0.19	0.67
10	0.44	−0.821	0.19	0.67
11	0.45	−0.799	0.20	0.64
12	0.45	−0.799	0.20	0.64
13	0.45	−0.799	0.20	0.64
14	0.46	−0.777	0.21	0.60
15	0.46	−0.777	0.21	0.60
16	0.46	−0.777	0.21	0.60
17	0.47	−0.755	0.22	0.57
18	0.47	−0.755	0.22	0.57
19	0.47	−0.755	0.22	0.57
20	0.47	−0.755	0.22	0.57
21	0.47	−0.755	0.22	0.57
22	0.48	−0.734	0.23	0.54
23	0.48	−0.734	0.23	0.54
24	0.49	−0.713	0.24	0.51
25	0.49	−0.713	0.24	0.51
26	0.49	−0.713	0.24	0.51
27	0.49	−0.713	0.24	0.51
28	0.5	−0.693	0.25	0.48
29	0.5	−0.693	0.25	0.48
30	0.51	−0.673	0.26	0.45
31	0.52	−0.654	0.27	0.43
32	0.52	−0.654	0.27	0.43
33	0.52	−0.654	0.27	0.43
34	0.53	−0.635	0.28	0.40
35	0.53	−0.635	0.28	0.40
36	0.54	−0.616	0.29	0.38
37	0.54	−0.616	0.29	0.38
38	0.59	−0.528	0.35	0.28
39	0.6	−0.511	0.36	0.26
40	0.61	−0.494	0.37	0.24
41	0.63	−0.462	0.40	0.21
42	0.72	−0.329	0.52	0.11
43	0.77	−0.261	0.59	0.07
44	0.87	−0.139	0.76	0.02
45	0.95	−0.051	0.90	0.00
SUM:	22.88	−31.6705	12.33	24.72936
MEAN:	0.508	−0.704	0.274	0.550
STD:	0.126	0.235	0.153	0.354

TABLE B-2
FERNALD ENVIRONMENTAL SOIL DATA FOR COMPOUND Y (n=81)

Rank	xi	ln[xi]	i/(n+1)	mi	mi^2	mi*xi	mi*ln[xi]
56	7.4	2.001	0.6829	0.48	0.23	3.52	0.95
57	7.4	2.001	0.6951	0.51	0.26	3.78	1.02
58	7.4	2.001	0.7073	0.55	0.30	4.04	1.09
59	7.5	2.015	0.7195	0.58	0.34	4.36	1.17
60	7.5	2.015	0.7317	0.62	0.38	4.63	1.25
61	7.5	2.015	0.7439	0.66	0.43	4.92	1.32
62	7.6	2.028	0.7561	0.69	0.48	5.27	1.41
63	7.6	2.028	0.7683	0.73	0.54	5.57	1.49
64	7.7	2.041	0.7805	0.77	0.60	5.96	1.58
65	7.7	2.041	0.7927	0.82	0.67	6.28	1.67
66	7.7	2.041	0.8049	0.86	0.74	6.62	1.75
67	7.7	2.041	0.8171	0.90	0.82	6.96	1.85
68	7.8	2.054	0.8293	0.95	0.90	7.42	1.95
69	7.8	2.054	0.8415	-1.00	1.00	7.80	-2.06
70	7.8	2.054	0.8537	1.05	1.11	8.21	2.16
71	7.8	2.054	0.8659	1.11	1.23	8.63	2.27
72	7.8	2.054	0.8780	1.17	1.36	9.09	2.39
73	7.9	2.067	0.8902	1.23	1.51	9.70	2.54
74	8.0	2.079	0.9024	1.30	1.68	10.36	2.69
75	8.0	2.079	0.9146	1.37	1.88	10.96	2.85
76	8.0	2.079	0.9268	1.45	2.11	11.62	3.02
77	8.1	2.092	0.9390	1.55	2.39	12.53	3.24
78	8.1	2.092	0.9512	1.66	2.74	13.42	3.47
79	8.1	2.092	0.9634	1.79	3.21	14.51	3.75
80	8.1	2.092	0.9756	1.97	3.88	15.96	4.12
81	8.8	2.175	0.9878	2.25	5.07	19.81	4.90
Sum	573.000	157.861			73.65	55.38	8.50
Mean	7.074	1.949					
Std. dev.	0.794	0.130					
Variance	0.630	0.017					

xi = analyte concentration in mg/Kg
ln[xi] = the natural logarithm of analyte concentraction in mg/Kg.
mi = expected value of the ith ordered normal quantitle at [i/(n+1)] (See Table A-7)

TABLE B-3
PARAMETRIC ANOVA
BACKGROUND AND ENVIRONMENTAL SOIL DATA FOR COMPOUND X

UNMODIFIED		MODIFIED**	
BACKGROUND	SITE-2*	MOD BKG	MOD SITE-2
0.05 U	7.3	0.025	7.3
0.05 U	7.3	0.025	7.3
0.05 U	7.3	0.025	7.3
0.05 U	7.3	0.025	7.3
0.05 U	7.3	0.025	7.3
0.05 U	7.3	0.025	7.3
0.05 U	7.4	0.025	7.4
0.05 U	7.4	0.025	7.4
0.05 U	7.4	0.025	7.4
0.05 U	7.5	0.025	7.5
0.05 U	7.5	0.025	7.5
0.05 U	7.5	0.025	7.5
0.05 U	7.6	0.025	7.6
0.05 U	7.6	0.025	7.6
0.05 U	7.7	0.025	7.7
0.05 U	7.7	0.025	7.7
0.05 U	7.7	0.025	7.7
0.05 U	7.7	0.025	7.7
0.05 U	7.8	0.025	7.8
0.05 U	7.8	0.025	7.8
0.05 U	7.8	0.025	7.8
0.05 U	7.8	0.025	7.8
0.06 U	7.8	0.03	7.8
0.06 U	7.9	0.03	7.9
0.06 U	8	0.03	8
0.06 U	8	0.03	8
0.06 U	8	0.03	8
0.06	8.1	0.06	8.1
0.07	8.1	0.07	8.1
0.08	8.1	0.08	8.1
0.09	8.1	0.09	8.1
0.1	8.8	0.1	8.8
	SUM:	2.09	573.00
	MEAN:	0.03	7.07
	STD:	0.01	0.79

* – Site 2 data is the same as found on Table B-2 in Appendix B.
** – All nondetected values in the unmodified table are reported as IDL/2 in the modified table.

TABLE B-4
KRUSKAL-WALLIS TEST
BACKGROUND AND ENVIRONMENTAL SOIL DATA FOR COMPOUND X

Background			Site 2 **			Site 3		
Original *	Modified	Rank	Original *	Modified	Rank	Original *	Modified	Rank
0.05 U	0.025	105.5	7.3	7.3	213	0.17	0.17	134
0.05 U	0.025	105.5	7.3	7.3	213	0.2	0.2	135
0.05 U	0.025	105.5	7.3	7.3	213	0.21	0.21	136
0.05 U	0.025	105.5	7.4	7.4	219	0.22	0.22	137.5
0.05 U	0.025	105.5	7.4	7.4	219	0.22	0.22	137.5
0.05 U	0.025	105.5	7.4	7.4	219	0.23	0.23	139.5
0.05 U	0.025	105.5	7.5	7.5	222	0.23	0.23	139.5
0.05 U	0.025	105.5	7.5	7.5	222	0.24	0.24	141
0.05 U	0.025	105.5	7.5	7.5	222	0.25	0.25	143
0.05 U	0.025	105.5	7.6	7.6	224.5	0.25	0.25	143
0.05 U	0.025	105.5	7.6	7.6	224.5	0.25	0.25	143
0.05 U	0.025	105.5	7.7	7.7	227.5	0.28	0.28	145
0.05 U	0.025	105.5	7.7	7.7	227.5	0.3	0.3	146
0.05 U	0.025	105.5	7.7	7.7	227.5	0.32	0.32	147
0.05 U	0.025	105.5	7.7	7.7	227.5	0.34	0.34	148
0.05 U	0.025	105.5	7.8	7.8	232	0.36	0.36	149
0.05 U	0.025	105.5	7.8	7.8	232	0.39	0.39	150
0.05 U	0.025	105.5	7.8	7.8	232	0.45	0.45	151
0.05 U	0.025	105.5	7.8	7.8	232	0.49	0.49	153
0.06 U	0.03	125	7.8	7.8	232	0.49	0.49	153
0.06 U	0.03	125	7.9	7.9	235	0.49	0.49	153
0.06 U	0.03	125	8	8	237	0.5	0.5	155
0.06 U	0.03	125	8	8	237	0.53	0.53	156
0.06 U	0.03	125	8	8	237	0.55	0.55	157
0.06	0.06	128	8.1	8.1	240.5	0.56	0.56	158
0.07	0.07	129	8.1	8.1	240.5	0.57	0.57	159
0.08	0.08	130	8.1	8.1	240.5	0.64	0.64	160
0.09	0.09	131	8.1	8.1	240.5	0.66	0.66	161
0.1	0.1	132	8.8	8.8	243	0.71	0.71	162
Sum		7452			16443			5751
Average		92			203			71

* All nondetect values (data values with an U qualifier) are reported as DL/2 in the modified columns.

** Site 2 data is the same as found on Table B-2 in Appendix B

TABLE B-6
WILCOXON RANK - SUM TEST
BACKGROUND AND ENVIRONMENTAL SOIL DATA FOR COMPOUND X

Background			Site 3		
Original *	Modified	Rank	Original *	Modified	Rank
0.05 U	0.025	105.5	0.17	0.17	134
0.05 U	0.025	105.5	0.2	0.2	135
0.05 U	0.025	105.5	0.21	0.21	136
0.05 U	0.025	105.5	0.22	0.22	137.5
0.05 U	0.025	105.5	0.22	0.22	137.5
0.05 U	0.025	105.5	0.23	0.23	139.5
0.05 U	0.025	105.5	0.23	0.23	139.5
0.05 U	0.025	105.5	0.24	0.24	141
0.05 U	0.025	105.5	0.25	0.25	143
0.05 U	0.025	105.5	0.25	0.25	143
0.05 U	0.025	105.5	0.25	0.25	143
0.05 U	0.025	105.5	0.28	0.28	145
0.05 U	0.025	105.5	0.3	0.3	146
0.05 U	0.025	105.5	0.32	0.32	147
0.05 U	0.025	105.5	0.34	0.34	148
0.05 U	0.025	105.5	0.36	0.36	149
0.05 U	0.025	105.5	0.39	0.39	150
0.05 U	0.025	105.5	0.45	0.45	151
0.05 U	0.025	105.5	0.49	0.49	153
0.06 U	0.03	125	0.49	0.49	153
0.06 U	0.03	125	0.49	0.49	153
0.06 U	0.03	125	0.5	0.5	155
0.06 U	0.03	125	0.53	0.53	156
0.06 U	0.03	125	0.55	0.55	157
0.06	0.06	128	0.56	0.56	158
0.07	0.07	129	0.57	0.57	159
0.08	0.08	130	0.64	0.64	160
0.09	0.09	131	0.66	0.66	161
0.1	0.1	132	0.71	0.71	162
Sum		7452			5751
Average		92			71

* All nondetect values (data values with an U qualifier) are reported as DL/2 in the modified columns.

SUPPLEMENT C

REFERENCES

REFERENCES

1. Gilbert, Richard O., Statistical Methods for Environmental Pollution Monitoring. Van Nostrand Reinhold Company, New York, New York, 1987.

2. Snedecor and Cochran, Statistical Methods. The Iowa State University Press, 1980.

3. U.S. EPA 530/SW-89-026, "Guidance Document on the Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities," 1989.

4. U.S. EPA 530/R-93-003, "Statistical Training Course for Ground-Water Monitoring Data Analysis," July 1992.

SUPPLEMENT D

SAMPLE CALCULATIONS

HALLIBURTON NUS Environmental Corporation and Subsidiaries — STANDARD CALCULATION SHEET

CLIENT: DOE OU-5	FILE NO.:	BY: RJH	PAGE 1 OF 1
SUBJECT: Test of Proportions		CHECKED BY: MV 6-21-94	DATE:

Step 1: $X = 40$, $Y = 35$, $n = 48 + 41 = 89$

$$P = \frac{(X+Y)}{n} = \frac{40+35}{89} = 0.8427$$

$$nP = 75, \quad n(1-P) = 13.9997 \quad \text{both} > 5 \checkmark$$

Step 2:

$$P_b = \frac{X}{n_b} = \frac{40}{48} = 0.8333$$

$$P_e = \frac{Y}{n_e} = \frac{35}{41} = 0.8536$$

$$S_D = \sqrt{\left(\frac{(X+Y)}{(n_b+n_e)}\right)\left(1 - \frac{X+Y}{n_b+n_e}\right)\left(\frac{1}{n_b} + \frac{1}{n_e}\right)}$$

$$= \sqrt{\left(\frac{75}{89}\right)\left(1 - \frac{75}{89}\right)\left(\frac{1}{48} + \frac{1}{41}\right)} = 0.0774$$

Step 3:

$$Z = \frac{P_b - P_e}{S_D} = \frac{|0.8333 - 0.8536|}{0.0774} = 0.2623$$

$0.2623 < 1.96$ so no statistically significant contamination

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HALLIBURTON NUS Environmental Corporation and Subsidiaries			STANDARD CALCULATION SHEET
CLIENT: DOE OU-5	FILE NO.:	BY: RH	PAGE 1 OF 1
SUBJECT: Bartlett's Test		CHECKED BY: MN 6-24-94	DATE:

Step 1

Sample Variance (Background) $= S_b^2 = \sum_{i=1}^{48} \frac{(x_i - \bar{x})^2}{48-1} = 3.61 \times 10^{-4}$

Sample Variance (Sample) $= S_s^2 = \sum_{i=1}^{41} \frac{(x_i - \bar{x})^2}{(41-1)} = 2.809 \times 10^{-2}$

Step 2

$\ln(S_b^2) = -12.5318$

$\ln(S_s^2) = -3.5723$

Step 3

$\chi^2 = f \ln(S_p^2) - \sum_{i=1}^{2} f_i \ln(S_i^2)$; $f = (48+41-2) = 87$

$S_p^2 = \sum_{i=1}^{89} \frac{(x_i - \bar{x})}{(89-1)} = 0.01897$

$\ln(S_p^2) = -3.9649$

$\chi^2 = 87(-3.9649) - [47(-12.5318) + 40(-3.5723)]$

$= -344.9463 - [-731.8866]$

$= 386.9403 > 3.841$

$\therefore$ Variances are not homogeneous

Reference: B. Rosner
Fund of Biostats

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HALLIBURTON NUS 155 REVISED 0791

HALLIBURTON NUS Environmental Corporation and Subsidiaries	5697	STANDARD CALCULATION SHEET

CLIENT: DOE OU-5	FILE NO.:	BY: RJA	PAGE 1 OF 1
SUBJECT: Wilcoxon Rank-Sum Test		CHECKED BY: MR 6-21-94	DATE:

Step 1: $W = \sum_{i=1}^{n} E_i - \frac{1}{2} n(n+1) = 2829 - \frac{1}{2}(41)(42)$

$W = 1968$

Step 2: $E(W) = \frac{1}{2}(m)(n) = \frac{1}{2}(48)(41) = 984$

$$SD'(W) = \sqrt{\frac{1}{12}(m)(n)\left[N+1 - \left(\frac{\sum_{j=1}^{g} t_j(t_j^2-1)}{N(N-1)}\right)\right]}$$

$$\sum_{j=1}^{g} t_j(t_j^2-1) = 2(3) + 17(288) + 5(24) + 14(195) + 4(15) + 4(15) + 2(3) = 7878$$

$$SD'(W) = \sqrt{\frac{1}{12}(48)(41)\left[90 - \frac{(7878)}{8010}\right]}$$

$SD'(W) = 120.8251$

Step 3: Compute the approx. Z-score

$$Z = \frac{W - E(W) - \frac{1}{2}}{SD'(W)} = \frac{1968 - 984 - 0.5}{120.8251}$$

$= 8.1399 > 2.326$

$\therefore \exists$ Statistically significant contamination.

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HALLIBURTON NUS 155 REVISED 0791

HALLIBURTON NUS Environmental Corporation and Subsidiaries — **STANDARD CALCULATION SHEET**

CLIENT: DOE OU-5	FILE NO.:	BY: RJH	PAGE 1 OF 1
SUBJECT: Parametric ANOVA (T-test)		CHECKED BY: MW 6-21-99	DATE:

Step 1: $\sum \chi_b = 0.1762$, $\sum \chi_s = 6.5573$

$X = \chi_b + \chi_s = 6.7335$

$\bar{\chi}_b = 0.0037$, $\bar{\chi}_s = 0.1599$, $\bar{X} = 0.0756$ (X / 48+41)

Step 2

$$SS_{sample} = \sum_{i=1}^{2} n_i(\bar{X}_i - \bar{X})^2 = \sum_{i=1}^{2}\left[\frac{X_i^2}{n_i}\right] - \frac{X^2}{N}$$

$$= \left[\frac{X_b^2}{n_b} + \frac{X_s^2}{n_s}\right] - \frac{(6.7335)^2}{89} = \left[\frac{(0.1762)^2}{48} + \frac{(6.5573)^2}{41}\right] - \frac{(6.7335)^2}{89}$$

$$= 0.5399$$

Step 3

$$SS_{TOTAL} = [\chi_b^2 + \chi_s^2] - \frac{X^2}{N} = [(0.1762)^2 + (6.5573)^2] - \frac{(6.7335)^2}{89}$$

$$= 42.5198$$

Step 4 $SS_{ERROR} = SS_{TOTAL} - SS_{sample} = 42.5198 - 0.5399 = 41.9799$

Step 5 $MS_{sample} = SS_{sample}/(2-1) = SS_{sample} = 0.5399$

$$MS_{ERROR} = SS_{Error}/(N-p) = \frac{41.9799}{(89-2)} = 0.4825$$

$$F = \frac{MS_{sample}}{MS_{Error}} = \frac{0.5399}{0.4825} = 1.119 < 3.95$$

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HALLIBURTON NUS Environmental Corporation and Subsidiaries	5697	STANDARD CALCULATION SHEET

CLIENT: DOE OWS	FILE NO.:	BY: PJH	PAGE 1 OF 4
SUBJECT: Shapiro-Wilk W-Test		CHECKED BY: MW 6-21-94	DATE:

Normal (Background)

$d = \sum (x_i)^2 - \frac{1}{n}\left[\sum x_i\right]^2$ $\qquad k = \frac{48}{2} = 24$ ✓

$d = 0.000825 - \frac{1}{48}(0.1762)^2$

$d = 1.78 \times 10^{-4} \leftarrow 1.7786 \times 10^{-4}$

$a_1 = 0.3789$	$a_7 = 0.1551$	$a_{13} = 0.0906$	$a_{19} = 0.0411$
$a_2 = 0.2604$	$a_8 = 0.1423$	$a_{14} = 0.0817$	$a_{20} = 0.0335$
$a_3 = 0.2281$	$a_9 = 0.1306$	$a_{15} = 0.0731$	$a_{21} = 0.0259$
$a_4 = 0.2045$	$a_{10} = 0.1197$	$a_{16} = 0.0648$	$a_{22} = 0.0185$
$a_5 = 0.1855$	$a_{11} = 0.1095$	$a_{17} = 0.0568$	$a_{23} = 0.0111$
$a_6 = 0.1693$	$a_{12} = 0.0998$	$a_{18} = 0.0489$	$a_{24} = 0.0037$

$$W = \frac{1}{d}\left[\sum_{n+1}^{k} a_i (x_{(n-i+1)} - x_i)\right]^2$$

a_1

$$= \frac{1}{d}\Big[a_1(0.0010 - 0.010) + a_2(0.0010 - 0.007) + a_3(0.0015 - 0.006) + a_4(0.002 - 0.006)$$
$$+ a_5(0.002 - 0.006) + a_6(0.002 - 0.006) + a_7(0.002 - 0.0056) + a_8(0.002 - 0.0054)$$
$$+ a_9(0.002 - 0.005) + a_{10}(0.002 - 0.005) + a_{11}(0.002 - 0.005) + a_{12}(0.002 - 0.005)$$
$$+ a_{13}(0.002 - 0.005) + a_{14}(0.002 - 0.005) + a_{15}(0.002 - 0.005) + a_{16}(0.002 - 0.005)$$
$$+ a_{17}(0.002 - 0.005) + a_{18}(0.002 - 0.005) + a_{19}(0.002 - 0.005) + a_{20}(0.002 - 0.005)$$
$$+ a_{21}(0.002 - 0.005) + a_{22}(0.0025 - 0.005) + a_{23}(0.0025 - 0.0042) + a_{24}(0.0025 - 0.0025)\Big]^2$$

$$= \frac{1}{d}\Big[0.3789(0.009) + 0.2604(0.006) + 0.2281(0.0045) + 0.2045(0.004)$$
$$+ 0.1855(0.004) + 0.1693(0.004) + 0.1551(0.0036) + 0.1423(0.0034)$$
$$+ 0.1306(0.003) + 0.1197(0.003) + 0.1095(0.003) + 0.0998(0.003)$$
$$+ 0.0906(0.003) \; 0.0817(0.003) + 0.0731(0.003) + 0.0648(0.003)$$
$$+ 0.0568(0.003) + 0.0489(0.003) + 0.0411(0.003) + 0.0335(0.003)$$
$$+ 0.0259(0.003) + 0.0185(0.0035) + 0.0111(0.0017) + 0.0037(0)\Big]^2$$

$$= \frac{1}{d}\left[0.0123\right]^2 = \frac{1}{1.78 \times 10^{-4}}\left[1.51 \times 10^{-4}\right] = 0.8483 < 0.947$$

0.0122585

000485

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HALLIBURTON NUS Environmental Corporation and Subsidiaries		STANDARD CALCULATION SHEET	
CLIENT: DOE OU-5	FILE NO.:	BY: RJH	PAGE 2 OF 4
SUBJECT: Shapiro-Wilk W-test		CHECKED BY: MM 6-21-94	DATE:

Log-normal (Background)

$$d = \sum [\ln(x_i)]^2 - \frac{1}{n}\left[\sum(\ln x_i)\right]^2 \qquad K = \frac{48}{2} = 24$$

$$d = 1601.3935 - \frac{1}{48}(-276.0099)^2$$

$$d = 14.2796$$

$$W = \frac{1}{d}\left[\sum a_i \left[\ln(x_{(n-i+1)}) - \ln(x_i)\right]\right]^2$$

$$W = \frac{1}{d}\Big[a_1[-4.6052-(-6.9078)] + a_2[-4.9618-(-6.9078)] + a_3[-5.1160-(-6.5023)] + a_4[-5.1160-(-6.2146)] + a_5[-5.1160-(-6.2146)] + a_6[-5.1160-(-6.2146)] + a_7[-5.2214-(6.2146)] + a_8[-5.2983-(-6.2146)] + a_9[-5.2983-(-6.2146)] + a_{10}[-5.2983-(-6.2146)] + a_{11}[-5.2983-(-6.2146)] + a_{12}[-5.2983-(-6.2146)] + a_{13}[-5.2983-(-6.2146)] + a_{14}[-5.2983-(-6.2146)] + a_{15}[-5.2983-(-6.2146)] + a_{16}[-5.2983-(-6.2146)] + a_{17}[-5.2983-(-6.2146)] + a_{18}[-5.2983-(-6.2146)] + a_{19}[-5.2983-(-6.2146)] + a_{20}[-5.2983-(-6.2146)] + a_{21}[-5.2983-(-5.9915)] + a_{22}[-5.9915-(-5.9915)] + a_{23}[-5.9915-(-5.9915)] + a_{24}[-5.9915-(-5.9915)]\Big]$$

$$W = \frac{1}{d}\Big[0.3789(2.3026) + 0.2604(1.946) + 0.2281(1.3863) + 0.2045(1.0986) + 0.1855(1.0986) + 0.1693(1.0986) + 0.1551(0.9932) + 0.1423(0.9163) + 0.1306(0.9163) + 0.1197(0.9163) + 0.1095(0.9163) + 0.0998(0.9163) + 0.0906(0.9163) + 0.0817(0.9163) + 0.0731(0.9163) + 0.0648(0.9163) + 0.0568(0.9163) + 0.0489(0.9163) + 0.0411(0.9163) + 0.0335(0.9163) + 0.0259(0.6932) + 0 + 0 + 0\Big]^2$$

$$= \frac{1}{d}[3.4828]^2 = \frac{12.1299}{14.2796} = 0.8494 < 0.947$$

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HALLIBURTON NUS Environmental Corporation and Subsidiaries	5697	STANDARD CALCULATION SHEET

CLIENT: DOE OU-5	FILE NO.:	BY: DA	PAGE 3 OF 4
SUBJECT: Shapiro-Wilk W-Test		CHECKED BY: MT 6-21-94	DATE:

Normal (Sample)

$d = \sum (x_i)^2 - \frac{1}{n}\left[\sum x_i\right]^2$ $\qquad K = \frac{41-1}{2} = 20$

$= 2.1722 - \frac{1}{41}[6.5573]^2$

$= 1.1235$

$a_1 = 0.3940$	$a_8 = 0.1384$	$a_{15} = 0.0575$
$a_2 = 0.2719$	$a_9 = 0.1249$	$a_{16} = 0.0476$
$a_3 = 0.2357$	$a_{10} = 0.1123$	$a_{17} = 0.0379$
$a_4 = 0.2091$	$a_{11} = 0.1004$	$a_{18} = 0.0283$
$a_5 = 0.1876$	$a_{12} = 0.0891$	$a_{19} = 0.0188$
$a_6 = 0.1693$	$a_{13} = 0.0782$	$a_{20} = 0.0094$
$a_7 = 0.1531$	$a_{14} = 0.0677$	

$$W = \frac{1}{d}\left[\sum_{i=1}^{k} a_i \left(x_{(n-i+1)} - x_i\right)\right]^2$$

$$= \frac{1}{d}\Big[a_1(0.6690-0.0140) + a_2(0.5200-0.0295) + a_3(0.5200-0.0330) + a_4(0.4520-0.0320)$$
$$+ a_5(0.3790-0.0360) + a_6(0.3710-0.0370) + a_7(0.3500-0.040) + a_8(0.300-0.041)$$
$$+ a_9(0.3000-0.044) + a_{10}(0.2720-0.0448) + a_{11}(0.2540-0.046) + a_{12}(0.2490-0.048)$$
$$+ a_{13}(0.2410-0.049) + a_{14}(0.2140-0.05) + a_{15}(0.1090-0.05) + a_{16}(0.1020-0.05)$$
$$+ a_{17}(0.09-0.05) + a_{18}(0.089-0.057) + a_{19}(0.072-0.06) + a_{20}(0.071-0.061)\Big]^2$$

$$= \frac{1}{d}\Big[0.3940(0.655) + 0.2719(0.4905) + 0.2357(0.49) + 0.2091(0.418)$$
$$+ 0.1876(0.343) + 0.1693(0.334) + 0.1531(0.31) + 0.1384(0.259)$$
$$+ 0.1249(0.256) + 0.1123(0.2272) + 0.1004(0.208) + 0.0891(0.201)$$
$$+ 0.0782(0.192) + 0.0677(0.164) + 0.0575(0.059) + 0.0476(0.052)$$
$$+ 0.0379(0.04) + 0.0283(0.032) + 0.0188(0.012) + 0.0094(0.01)\Big]^2$$

$$= \frac{1}{d}[0.9295]^2 = \frac{0.8640}{1.1235} = 0.7690 < 0.941$$

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HALLIBURTON NUS Environmental Corporation and Subsidiaries		STANDARD CALCULATION SHEET	
CLIENT: DOE OU-5	FILE NO.:	BY: RJA	PAGE 4 OF 4
SUBJECT: Shapiro-Wilk W-Test		CHECKED BY: MR 6-21-94	DATE:

Log-normal (Sample)

$$d = \sum [\ln(x_i)]^2 - \frac{1}{n}\left[\sum(\ln x_i)\right]^2 \qquad K = \frac{41-1}{2} = 20$$

$$d = 264.8727 - \frac{1}{41}[-95.8692]^2$$

$$d = 40.7043$$

$$W = \frac{1}{d}\left[\sum a_i \left(\ln[x_{(n-i+1)}] - \ln[x_i]\right)\right]^2$$

$$= \frac{1}{d}\Big[a_1(-0.4020 + 4.2687) + a_2(-0.6539 + 3.5234) + a_3(-0.6539 + 3.5066)$$
$$+ a_4(-0.7985 + 3.4420) + a_5(-0.9702 + 3.3242) + a_6(-0.9916 + 3.2968)$$
$$+ a_7(-1.0498 + 3.2189) + a_8(-1.2040 + 3.1942) + a_9(-1.2040 + 3.1236)$$
$$+ a_{10}(-1.3020 + 3.1055) + a_{11}(-1.3704 + 3.0791) + a_{12}(-1.3903 + 3.0366)$$
$$+ a_{13}(-1.4230 + 3.0159) + a_{14}(-1.5418 + 2.9957) + a_{15}(-2.2164 + 2.9957)$$
$$+ a_{16}(-2.2828 + 2.9957) + a_{17}(-2.4079 + 2.9957) + a_{18}(-2.4191 + 2.8647)$$
$$+ a_{19}(-2.6311 + 2.8134) + a_{20}(-2.6451 + 2.7969)\Big]^2$$

$$= \frac{1}{d}\Big[0.3940(3.8667) + 0.2719(2.8695) + 0.2357(2.8527) + 0.2091(2.64[illegible])$$
$$+ 0.1876(2.354) + 0.1693(2.3052) + 0.1531(2.1691) + 0.1384(1.9902)$$
$$+ 0.1249(1.9196) + 0.1123(1.8035) + 0.1004(1.7087) + 0.0891(1.6463)$$
$$+ 0.0782(1.5929) + 0.0677(1.4539) + 0.0575(0.7793) + 0.0476(0.7129)$$
$$+ 0.0379(0.5878) + 0.0283(0.4456) + 0.0188(0.1823) + 0.0094(0.1518)\Big]^2$$

$$= \frac{1}{d}[6.0702]^2 = \frac{36.8473}{40.7043} = 0.9052 < 0.9410$$

DRAFT

000488

HALLIBURTON NUS Environmental Corporation and Subsidiaries	5697	STANDARD CALCULATION SHEET

CLIENT: DOE OUMO	FILE NO.:	BY: DJA	PAGE 1 OF 1
SUBJECT:		CHECKED BY: MM 6-21-94	DATE:

Wicoxon Rank-Sum

$N = 81 + 81$

Step 1: Order ✓

Step 2: $W = R_i - \frac{1}{2} n(n+1)$.

$W = 5751 - \frac{1}{2}(81)(82)$

$W = 2430$

from R_3 example in Kruskal-Wallis

Step 3: $E(W) = \frac{1}{2} mn$; $SD(W) = \sqrt{\frac{1}{12}(mn)(N+1)}$

$E(W) = \frac{1}{2}(81)(81) = 3280$

$SD(W) = \sqrt{\frac{1}{12}(81)(81)(163)} = 298.5$

Step 4:

$$Z = \frac{W - E(W) - \frac{1}{2}}{SD(W)} = \frac{2430 - 3280 - 0.5}{298.5} = -2.849.$$

$Z_{0.01} = 2.326$

~~$Z = 4.868 > 2.326 = Z_{0.01}$~~

$Z = -2.849 < 2.326 = Z_{0.01}$

$\therefore$ No contamination

DRAFT

000489

HALLIBURTON NUS Environmental Corporation and Subsidiaries		STANDARD CALCULATION SHEET	
CLIENT: DOE OU-5	FILE NO.:	BY: RJA	PAGE 1 OF 2
SUBJECT:		CHECKED BY: MT 6-21-94	DATE:

Step 1 ⇒ Table

ANOVA (Background ① & Site-1 ②)

Step 2 $X_i = \sum_{j=1}^{n_i} x_{ij}$ = Total of all n_i observations @ well i

$X_1 = 2.09 \quad X_2 = 573$

X = Grand total of all n_i observations
$= 2.09 + 573 = 575.09$

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$\bar{X}_i$ = Avg. of all n_i obs. @ well i

$\bar{X}_1 = 0.03 \quad \bar{X}_2 = 7.07$

$\bar{X}$ = Grand mean $= \frac{X}{n_1+n_2} = \frac{575.09}{162} = 3.55$ mg/kg

Step 3: $SS_{samplelocation} = \sum_{i=1}^{p} n_i (\bar{X}_i - \bar{X})^2 = \sum_{i=1}^{p} \frac{1}{n_i} X_i^2 - \frac{1}{N} X^2$

$= \sum_{i=1}^{2} \frac{1}{n_i} X_i^2 - \frac{1}{N} X^2$

$= \left(\frac{X_1^2}{81} + \frac{X_2^2}{81}\right) - \frac{X}{N} = \left(\frac{4.37}{81} + \frac{328{,}000}{81}\right) - \frac{575.1}{162}$

$SS_{SL} = 4046$ mg/kg

Step 4:

$SS_{TOTAL} = \sum_{i=1}^{p} \sum_{j=1}^{n_i} (x_{ij} - \bar{X})^2 = \sum_{i=1}^{p} \sum_{j=1}^{n_i} X_{ij}^2 - (X^2/N)$

$= \cancel{(0.015)^2 + (0.015)^2 + \ldots + (8.8)^2}$

000490

Put in B-M

$10(0.015)^2 + 27(0.02)^2 + 34(0.025)^2 + \ldots$

$= 0.0718 + 4103.82 = 4103.9 - \frac{(575.1)^2}{162} = \boxed{2062}$

CLIENT: DOE OU-5	FILE NO.: ANOVA	BY: RHA	PAGE 2 OF 2
SUBJECT:		CHECKED BY:	DATE:

Step 5: $SS_{ERROR} = SS_{TOTAL} - SS_{SL} = 2062 - 4046 = \boxed{-1984}$

Step 6:

$MS_{SL} = SS_{SL}/(p-1) = SS_{SL}/1 = 4046$

$MS_{ERROR} = SS_{ERROR}/(162-2) = \frac{-1984}{160} = -12.4$ or 12.4

$F = \frac{MS_{SL}}{MS_{ERROR}} = \frac{4046}{12.4} = 326$

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Step 8: $p = u + m = 1 + 1$

$n_b = 81, \quad \bar{X}_b = 0.03$

$\bar{X}_i - \bar{X}_b = 7.07 - 0.03 = 7.04$ mg/kg

$SE_i = [12.4(1/n_b + 1/n_i)]^{1/2} = [12.4(\frac{1}{81} + \frac{1}{81})]^{1/2}$

~~= 0.674~~ 0.553

$\frac{1 - 0.05}{1} = 0.95$

$t_{(N-p),(1-\alpha/m)} = t_{(79, 0.95)} \approx 1.68$

$D_i = SE_i \times t = (\cancel{0.674}\ 0.553)(1.68) = \cancel{1.13}\ 0.929$

Since $\bar{X}_i - \bar{X}_b > D_i$

$7.04 > \cancel{1.13}\ 0.929$

000491

We know that Site-1 has significantly higher concentration than avg background sampling concentrations.

ATTACHMENT A.III
PRELIMINARY TOXICITY SCREENING FOR ORGANIC CONSTITUENTS DETECTED IN OPERABLE UNIT 5

A preliminary toxicity screening procedure was applied to organic constituents detected in the various environmental media sampled in Operable Unit 5. This screening procedure involved a comparison of maximum constituent concentrations with corresponding screening levels derived as risk-based concentrations (RBCs) using equations and default exposure assumptions (Table A.III-1) presented in Risk Assessment Guidance for Superfund (RAGS), (EPA 1991). In addition to RBCs, federal maximum contaminant levels (MCLs) were used in the determination of groundwater screening levels. It should be noted for the purpose of the discussions contained within this attachment that the terms "screening levels" and "RBCs" are not always synonomous since a set of screening levels were selected from a larger set of RBCs (this will be clarified later in section A.III.2). This toxicity screening procedure served as one of selection criteria for retaining detected constituents for further quantitative evaluation as constituents of potential concern (CPCs) in the baseline human health risk assessment. Constituents passed this selection criterion if their maximum detected concentrations exceeded corresponding screening level concentrations.

A.III.1 Screening Levels for OPERABLE UNIT 5

Risk-based concentrations were derived for groundwater and soil under the default residential exposure assumptions presented in RAGS, Part B (EPA 1991). The residential groundwater and soil RBCs, MCLs and screening levels, as well as the corresponding exposure assumptions and equations, are presented in Tables A.III-2 and A.III-3. The same assumptions and equations are also presented and discussed in Section A.III.3.

It is important to note that although the purpose of the equations in RAGS, Part B is the development of RBCs to be used as preliminary remediation goals (PRGs), their purpose in the Operable Unit 5 baseline risk assessment was the development of a set of RBCs from which screening levels were selected. As stated previously, these screening levels were used in a preliminary screening of constituents for their inclusion as CPCs in the baseline risk assessment. Therefore, the screening levels should not be confused with PRGs, which have also been derived for Operable Unit 5 in Section A.7.3 in the baseline risk assessment.

As a point of departure in the development of PRGs, RAGS, Part B and the National Oil and Hazardous Substances Contingency Plan (NCP) (EPA 1990) recommend the calculation of each RBC corresponding to a risk level of 1×10^{-6} for carcinogens and a hazard quotient equal to unity for toxicants. However, for the development of individual groundwater and soil screening levels in this baseline risk assessment, RBCs were derived to correspond to a target risk of 1×10^{-7} and a target hazard quotient of 0.1 for carcinogenic and noncarcinogenic constituents, respectively. This set of carcinogenic and noncarcinogenic target risk levels were incorporated into the derivation of RBCs rather than a target risk level of 1×10^{-6} and a hazard quotient of 1.0, so that screening levels conservatively account for the additive nature of the relative risk contributions from individual CPCs.

Once selected, the resulting groundwater screening levels were compared with environmental constituent concentrations detected in both groundwater (groundwater data were stratified and classified according to well screening depth, namely Type 1, Type 2, Type 3, and Type 4) and surface water, because EPA provides no guidance for deriving surface water RBCs in RAGS, Part B. Likewise, the residential soil screening levels were compared with environmental constituent concentrations detected in both soil (soil data were stratified as surface and subsurface soils) and sediment, because EPA provides no guidance for deriving sediment RBCs in RAGS, Part B.

A.III.2 TOXICITY CRITERIA

Derivations of carcinogenic and noncarcinogenic RBCs were based on the availability of established toxicity criteria, namely cancer slope factors (SFs) and reference doses (RfDs). Thus, RBCs are presented as either SF-based or RfD-based in the appropriate columns in Tables A.III-2 and A.III-3. Screening levels were selected as the lower of the two values for constituents where both SF-based and RfD-based concentrations were derived. If an MCL was available for a groundwater constituent, then the groundwater screening level was selected as the minimum value of the SF-based concentration, the RfD-based concentration and the MCL. The toxicity criteria used for deriving RBCs for radionuclides and chemicals were obtained from Tables A.4-1 and A.4-3, respectively, in the baseline risk assessment for Operable Unit 5. These tables also cite the sources from which the toxicity criteria were obtained. No RBCs, and consequently, no screening levels were derived or presented in Tables A.III-2 and A.III-3 for constituents for which no toxicity criteria have been established.

A.III.3 DERIVATION OF OPERABLE UNIT 5 SCREENING LEVELS

This section presents the RAGS, Part B default exposure assumptions and equations used for deriving residential groundwater and soil screening levels for Operable Unit 5.

A.III.3.1 Input Values for Exposure Variables

Table A.III-1 summarizes the exposure terms and values used in residential equations for the derivation of groundwater and soil screening levels, as given by EPA in RAGS, Part B. No values are presented for cancer SFs and RfDs doses since these are chemical-specific variables (CSV). The cancer SFs for external irradiation (SFs), which are used in the derivation of RBCs for soil, incorporate a soil density of 1430 kg/m^3 and an assumed depth of radionuclides in soil of 0.1 m.

A.III.3.2 Derivation of Residential Groundwater RBCs

Groundwater screening levels were determined by calculating RBCs for a residential adult. The groundwater screening levels selected from the RBCs were also used for surface water. The groundwater/surface water RBC concentration units for radionuclides, organic chemicals and inorganic chemicals are in units of pCi/L, μg/L and mg/L, respectively. The following equations were used to derive groundwater RBCs for radionuclides, chemical carcinogens and toxicants. The RBC terms in the following equations are represented by Cw.

Radionuclides in groundwater/surface water:

$$Cw = \frac{TR}{(EFr * ED)\ [(SFo * IR) + (SFi * K * IRAa)]}$$

Chemcical carcinogens in groundwater/surface water

Organics:

$$Cw = \frac{TR * BWa * ATc * CF}{(EF * ED)\ [(SFo * IR) + (SFi * K * IRAa)]}$$

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TABLE A.III-1

EXPOSURE TERMS AND VALUES FOR OPERABLE UNIT 5 SCREENING LEVEL DERIVATION GROUNDWATER AND SOIL

Exposure Variables	Value	Name
Cancer slope factor, oral $(mg/kg/day)^{-1}$	CSV	SFo
Cancer slope factor, inhalation $(mg/kg/day)^{-1}$	CSV	SFi
Cancer slope factor, external irradiation (risk-g/pCi-yr)	CSV	SFe
Reference dose, oral (mg/kg/day)	CSV	RfDo
Reference dose, inhalation (mg/kg/day)	CSV	RfDi
Target cancer risk level	1E-07	TR
Target hazard quotient	0.1	THQ
Body weight, adult (kg)	70	BWa
Body weight, child (kg)	15	BWc
Daily water ingestion rate (L/day)	2	IR
Daily inhalation rate, adult (m^3/day)	15	IRAa
Daily soil ingestion rate, adult (mg/day)	100	IRa
Soil ingestion rate, child, ages 1-6 yrs (mg/day)	200	IRc
Age-adjusted soil ingestion factor for radionuclides ([mg-yr]/day)	3,600	IFr
Age-adjusted soil ingestion factor for chemical ([mg-yr]/[kg-day])	114	IFc
Exposure frequency (days/yr)	350	EF
Exposure duration (yrs)	30	ED
Exposure duration, adult (yrs)	24	EDa
Exposure duration, child, ages 1-6 yrs	6	EDc
Averaging time, carcinogens (days) 70 yrs x 365 days/year	25,550	ATc
Averaging time, noncarcinogens (days) ED x 365 days/yr = 30 years x 365 days/yr	10,950	Atn
Gamma shielding factor (unitless)	0.2	Se
Gamma exposure time factor (unitless)	1	Te
Volatilization factor (L/m3)	0.5	K
Conversion factor - organics in water (μg chem/mg chem)	1,000	CF
Conversion factor - radionuclides in soil (g soil/mg soil)	1E-03	CFr
Conversion factor - organics in soil ([0.001mg chem/μg chem] x [0.000001 kg soil/mg soil])	1e-09	CFo
Conversion factor - inorganics in soil (kg soil/mg soil)	1E-06	CFi

000495

Inorganics:

$$Cw = \frac{TR * BWa * ATc}{(EF * ED)\ [(SFo * IR) + (SFi * K * IRAa)]}$$

Chemical Toxicants in groundwater/surface water

Organics:

$$Cw = \frac{TR * BWa * ATc * CF}{(EF * ED)\ [((1/RfDo) * IR) + (SFi * K * IRAa)]}$$

Inorganics:

$$Cw = \frac{TR * BWa * ATc}{(EF * ED)\ [((1/RfDo) * IR) + (SFi * K * IRAa)]}$$

A default volatilization factor, 0.5 L/m^3, was applied only for volatile compounds, i.e., those compounds having a Henry's Law constant greater than 10^{-5}.

A.III.3.3 Derivation of Residential Soil RBCs

Soil screening levels were determined by calculating age-adjusted RBCs. The soil screening levels selected from the RBCs were also used for sediment. The soil/sediment RBC concentration units for radionuclides, organic chemicals and inorganic chemicals are in units of pCi/g, μg/kg and mg/kg, respectively. The following equations were used to derive soil RBCs for radionuclides, chemical carcinogens and toxicants. The RBC terms in the equations below are represented by Cs.

Radionuclides in soil/sediment

$$Cs = \frac{TR}{(SFo * EF * IFr * CFr) + (ED * SFe * [1-Se] * Te)}$$

Chemical Carcinogens in soil/sediment

Organics:

$$Cs = \frac{TR * ATc}{SFo * CFo * EF * IFc}$$

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Inorganics:

$$Cw = \frac{TR * ATc}{SFo * CFi * EF * IFc}$$

Chemical Toxicants in soil/sediment:

Organics:

$$Cs = \frac{THQ * ATn}{(1/RfDo) * CFo * EF * IFc}$$

Inorganics:

$$Cw = \frac{THQ * ATn}{(1/RfDo) * CFi * EF * IFc}$$

Calculation of Age-Adjusted Factors

The residential age-adjusted soil ingestion factors presented in the above equations, IFr (radionuclides) and IFc (chemicals), incorporate differences in contact rates between small children (ages 1-6 years old) and adults. These factors approximate the integrated exposure from birth until age 30 by combining contact rates, exposure durations, and body weights for the two age groups. The following equations, which were obtained from EPA RAGS, Part B, were used to derive the residential age-adjusted soil ingestion factors:

Ingestion of radionuclides in soil ([mg-yr]/[kg-day]):

$$IFc = \underline{(IRc * EDc)} + \underline{(IRa * EDa)}$$

Ingestion of chemicals in soil ([mg-yr]/[kg-day]):

$$IFc = \frac{(IRc * EDc)}{BWC} + \frac{(IRa * EDa)}{BWa}$$

TABLE A.III-2
RISK-BASED SCREENING LEVELS FOR
RADIONUCLIDES AND CHEMICALS IN GROUNDWATER/SURFACE WATER
RESIDENTIAL SCENARIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT, FERNALD, OHIO
OPERABLE UNIT #5

FILE: WATERSL.WK3
REVISED: 05-23-94

This spreadsheet calculates risk-based groundwater concentrations under an adult residential drinking water exposure scenario. The risk-based concentrations will be used as screening levels for the selection of CPCs in groundwater and surface water. Spreadsheet calculations and input values for exposure parameters are those presented in RAGS, Part 1B (U.S. EPA, 1991). Screening levels calculated for carcinogenic and noncarcinogenic constituents of 1.0E-07 and 0.1, respectively.

1.) Calculation of risk-based concentration for radionuclides in groundwater:
Cw = TR/{(EF x ED)[(SFo x IR) + (SFi x K x IRAa)]}

2.) Calculation of risk-based concentration for carcinogenic chemicals in groundwater:
2a) Organics:
Cw = (TR x BWa x ATc x CF)/{(EF x ED)[(SFo x IR) + (SFi x K x IRAa)]}
2b) Inorganics:
Cw = (TR x BWa x ATc)/{(EF x ED)[(SFo x IR) + (SFi x K x IRAa)]}

3.) Calculation of risk-based concentration for noncarcinogenic chemicals in groundwater:
3a) Organics:
Cw = (THQ x BWa x ATn x CF)/{(EF x ED)[((1/RfDo) x IR) + ((1/RfDi) x K x IRAa)]}
3b) Inorganics:
Cw = (THQ x BWa x ATn)/{(EF x ED)[((1/RfDo) x IR) + ((1/RfDi) x K x IRAa)]}

Parameter	Description (Units)	Constants
Cw	Risk-based concentration of constituent in groundwater (pCi/L, ug/L, mg/L)	NA
TR	Target risk level (unitless)	1.0E-07
THQ	Target hazard quotient (unitless)	1.0E-01
SFo	Oral cancer slope factor (Risk/pCi; kg-day/mg)	CSV
SFi	Inhalation cancer slope factor (Risk/pCi; kg-day/mg)	CSV
RfDo	Oral reference dose (mg/kg/day)	CSV
RfDi	Inhalation reference dose (mg/kg/day)	CSV
BWa	Body weight, adult (kg)	70
ATc	Averaging time (carcinogen) = 70 years x 365 days/year	25550
ATn	Averaging time (noncarcinogen) = ED (years) x 365 days/year	10950
IR	Daily water ingestion rate (L/day)	2
IRAa	Daily inhalation rate (m3/day)	15
K	Volatilization factor (L/m3) = 0.0005 x 1,000 L/m3	CSV
EF	Exposure frequency (days/year)	350
ED	Exposure duration (years)	30
CF	Conversion factor, organics (ug/mg)	1000
	(Conversion factor not necessary for radionuclides and inorganics.)	

Radionuclide/Chemical	Constituent-Specific Variables					Cw (pCi/L)		MCL (pCi/L)	Screening Level [2][3] (pCi/L)
	SFo (Risk/pCi)	SFi (Risk/pCi)	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)		
Radionuclides, pCi/L									
Actinium-227	2.8E-10	8.0E-08	NA	NA	0	0.017	NA	NA	0.017
Actinium-227+7D [4]	3.5E-10	8.8E-08	NA	NA	0	0.014	NA	NA	0.014
Cesium-137	2.8E-11	1.9E-11	NA	NA	0	0.17	NA	NA	0.17
Cesium-137+1D	2.8E-11	1.9E-11	NA	NA	0	0.17	NA	NA	0.17
Lead-210	5.1E-10	1.3E-09	NA	NA	0	0.0093	NA	NA	0.0093
Lead-210+2D	6.6E-10	4.0E-09	NA	NA	0	0.0072	NA	NA	0.0072
Neptunium-237	2.2E-10	2.9E-08	NA	NA	0	0.022	NA	NA	0.022
Neptunium-237+1D	2.2E-10	2.9E-08	NA	NA	0	0.022	NA	NA	0.022
Plutonium-238	2.2E-10	3.9E-08	NA	NA	0	0.022	NA	NA	0.022
Plutonium-239	2.3E-10	3.8E-08	NA	NA	0	0.021	NA	NA	0.021
Plutonium-240	2.3E-10	3.8E-08	NA	NA	0	0.021	NA	NA	0.021
Polonium-210	1.5E-10	2.6E-09	NA	NA	0	0.032	NA	NA	0.032
Potassium-40	1.1E-11	7.6E-12	NA	NA	0	0.43	NA	NA	0.43
Protactinium-231	9.2E-11	3.6E-08	NA	NA	0	0.052	NA	NA	0.052
Radium-224	3.8E-11	1.2E-09	NA	NA	0	0.13	NA	NA	0.13
Radium-226	1.2E-10	3.0E-09	NA	NA	0	0.040	NA	20	0.040
Radium-226+5D [5]	1.2E-10	7.7E-12	NA	NA	0.5	0.032	NA	NA	0.032
Radium-226+8D [5][6]	7.8E-10	7.7E-12	NA	NA	0.5	0.0059	NA	NA	0.0059
Radium-228	1.0E-10	6.6E-10	NA	NA	0	0.048	NA	20	0.048
Radium-228+1D	1.0E-10	6.9E-10	NA	NA	0	0.048	NA	NA	0.048
Radon-222	1.4E-12	7.3E-13	NA	NA	0.5	1.2	NA	300	1.2
Radon-222+4D	1.7E-12	7.7E-12	NA	NA	0.5	0.16	NA	NA	0.16
Ruthenium-106	9.5E-12	4.4E-10	NA	NA	0	0.50	NA	NA	0.50
Strontium-90	3.3E-11	5.6E-11	NA	NA	0	0.14	NA	NA	0.14
Strontium-90+1D	3.6E-11	6.2E-11	NA	NA	0	0.13	NA	NA	0.13
Technetium-99	1.3E-12	8.3E-12	NA	NA	0	3.7	NA	NA	3.7
Thorium-228	1.1E-11	7.7E-08	NA	NA	0	0.43	NA	NA	0.43
Thorium-228+7D	5.5E-11	7.8E-08	NA	NA	0	0.087	NA	NA	0.087
Thorium-230	1.3E-11	2.9E-08	NA	NA	0	0.37	NA	NA	0.37
Thorium-232	1.2E-11	2.8E-08	NA	NA	0	0.40	NA	NA	0.40
Thorium-232+10D [6]	1.7E-10	1.1E-07	NA	NA	0	0.028	NA	NA	0.028
Thorium-234	4.0E-12	3.2E-11	NA	NA	0	1.2	NA	NA	1.2
Uranium-233	1.6E-11	2.7E-08	NA	NA	0	0.30	NA	NA	0.30
Uranium-234	1.6E-11	2.6E-08	NA	NA	0	0.30	NA	NA	0.30
Uranium-235	1.6E-11	2.5E-08	NA	NA	0	0.30	NA	NA	0.30
Uranium-235+1D	1.6E-11	2.5E-08	NA	NA	0	0.30	NA	NA	0.30
Uranium-236	1.5E-11	2.5E-08	NA	NA	0	0.32	NA	NA	0.32
Uranium-238	1.6E-11	2.4E-08	NA	NA	0	0.30	NA	NA	0.30
Uranium-238+2D	2.8E-11	5.2E-08	NA	NA	0	0.17	NA	NA	0.17

TABLE A.III-2 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables					Cw (ug/L)		MCL	Screening Level
	SFo (mg/kg/day)$^{-1}$	SFi (mg/kg/day)$^{-1}$	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	(ug/L)	[2] (ug/L)
Volatile Organic Compounds, ug/L									
1,1,1,2-Tetrachloroethane	2.6E-02	2.6E-02	3.0E-02	NA	0.5	0.069	110	NA	0.069
1,1,1-Trichloroethane	NA	NA	ND	2.9E-01	0.5	NA	151	200	151
1,1,2,2-Tetrachloroethane	2.0E-01	2.0E-01	NA	NA	0.5	0.0090	NA	NA	0.0090
1,1,2-Trichloroethane	5.7E-02	5.6E-02	4.0E-03	NA	0.5	0.032	15	5	0.032
1,1-Dichloroethane	NA	NA	NA	1.0E-01	0.5	NA	97	NA	97
1,1-Dichloroethene	6.0E-01	1.8E-01	9.0E-03	NA	0.5	0.0067	33	7	0.0067
1,2,3-Trichloropropane	NA	NA	6.0E-03	NA	0.5	NA	22	NA	22
1,2-Dibromo-3-chloropropane	1.4E+00	6.9E-07	NA	5.7E-05	0.5	0.0061	0.055	0.2	0.0061
1,2-Dibromoethane	8.5E+01	7.7E-01	NA	5.7E-05	0.5	0.00010	NA	NA	0.00010
1,2-Dichloroethane	9.1E-02	9.1E-02	NA	NA	0.5	0.020	NA	5	0.020
cis-1,2-Dichloroethene	NA	NA	1.0E-02	NA	0.5	NA	37	70	37
1,4-Dioxane	1.1E-02	NA	NA	NA	0	0.77	NA	NA	0.77
2-Butanone	NA	NA	6.0E-01	2.9E-01	0	NA	2,190	NA	2,190
2-Chloro-1,3-butadiene	NA	NA	NA	2.0E-03	0.5	NA	19	NA	19
2-Chloroethylvinyl ether	NA	NA	NA	NA	0.5	NA	NA	NA	NA
2-Hexanone	NA	NA	4.0E-02	NA	0	NA	146	NA	146
2-Picoline	NA	NA	NA	NA	0	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	0	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	5.0E-02	2.3E-02	0	NA	183	NA	183
Acetone	NA	NA	1.0E-01	NA	0	NA	365	NA	365
Acetonitrile	NA	NA	6.0E-03	1.4E-02	0	NA	22	NA	22
Acrolein	NA	NA	NA	5.7E-06	0	NA	73	NA	73
Acrylonitrile	5.4E-01	2.4E-01	NA	5.7E-04	0	0.016	NA	NA	0.016
Benzene	2.9E-02	2.9E-02	NA	NA	0.5	0.062	NA	5	0.062
Bromochloromethane	NA	NA	NA	NA	0	NA	NA	NA	NA
Bromodichloromethane	6.2E-02	NA	2.0E-02	NA	0.5	0.14	73	100	0.14
Bromoform	7.9E-03	3.8E-03	2.0E-02	NA	0.5	0.38	73	100	0.38
Bromomethane	NA	NA	1.4E-03	1.4E-03	0.5	NA	1.08	NA	1.08
Carbon tetrachloride	1.3E-01	5.2E-02	7.0E-04	NA	0.5	0.026	2.6	5	0.026
Carbon disulfide	NA	NA	1.0E-01	2.9E-03	0.5	NA	2.8	NA	2.8
Chlorobenzene	NA	NA	2.0E-02	5.7E-03	0.5	NA	5.2	100	5.2
Chloroethane	NA	NA	NA	2.9E+00	0.5	NA	2,784	NA	2,784
Chloroform	6.1E-03	8.0E-02	1.0E-02	NA	0.5	0.028	37	100	0.028
Chloromethane	1.3E-02	6.3E-03	NA	NA	0.5	0.23	NA	NA	0.23
Cumene	NA	NA	4.0E-02	2.6E-03	0	NA	146	NA	146
Dibromochloromethane	8.4E-02	NA	2.0E-02	NA	0.5	0.10	73	NA	0.10
Dibromomethane	NA	NA	NA	NA	0.5	NA	NA	NA	NA
1,2-Dichloropropane	NA	6.8E-02	NA	1.1E-03	0.5	0.033	1.07	NA	0.033
Dichlorodifluoromethane	NA	NA	2.0E-01	5.7E-02	0.5	NA	52	NA	52
Ethyl cyanide	NA	NA	NA	NA	0	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	9.0E-02	NA	0	NA	329	NA	329
Methyl methacrylate	NA	NA	8.0E-02	NA	0	NA	292	NA	292
Ethylbenzene	NA	NA	1.0E-01	2.9E-01	0.5	NA	158	700	158
Iodomethane	NA	NA	NA	NA	0.5	NA	NA	NA	NA
Isobutyl alcohol	NA	NA	3.0E-01	NA	0.5	NA	1,095	NA	1,095
Methacrylonitrile	NA	NA	NA	2.0E-04	0	NA	NA	NA	NA
Methylene chloride	7.5E-03	1.6E-03	6.0E-02	8.6E-01	0.5	0.63	174	5	0.63
Pentachloroethane	NA	NA	NA	NA	0	NA	NA	NA	NA
Pyridine	NA	NA	1.0E-03	NA	0	NA	3.7	NA	3.7
Styrene	3.0E-02	NA	2.0E-01	2.9E-01	0.5	0.28	202	100	0.28
Tetrachloroethene	5.2E-02	2.0E-03	1.0E-02	NA	0.5	0.14	37	5	0.14
Toluene	NA	NA	2.0E-01	1.1E-01	0.5	NA	93.37	1000	93
Total Xylenes	NA	NA	2.0E+00	NA	0.5	NA	7,300	10000	7,300
Trichloroethene	1.1E-02	6.0E-03	6.0E-03	NA	0.5	0.25	22	5	0.25
Trichlorofluoromethane	NA	NA	3.0E-01	2.0E-01	0.5	NA	165	NA	165
Vinyl acetate	NA	NA	1.0E+00	5.7E-02	0	NA	3,650	NA	3,650
Vinyl chloride	1.9E+00	3.0E-01	NA	NA	0.5	0.0028	NA	2	0.0028
cis-1,3-Dichloropropene	1.8E-01	1.3E-01	NA	NA	0.5	0.013	NA	NA	0.011
trans-1,2-Dichloroethene	NA	NA	2.0E-02	NA	0.5	NA	73	100	73
trans-1,3-Dichloropropene	1.8E-01	1.3E-01	NA	NA	0.5	0.013	NA	NA	0.013
trans-1,4-Dichloro-2-butene	NA	9.3E+00	NA	NA	0.5	0.00024	NA	NA	0.00024

TABLE A.III-2 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables SFo (mg/kg/day)$^{-1}$	SFi (mg/kg/day)$^{-1}$	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	Cw (ug/L) SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	MCL (ug/L)	Screening Level [2] (ug/L)
Semivolatile Organic Compounds, ug/L									
1,2,4,5-Tetrachlorobenzene	NA	NA	3.0E-04	NA	0.5	NA	1.1	NA	1.1
1,2,4-Trichlorobenzene	NA	NA	1.0E-02	2.6E-03	0.5	NA	2.3	70	2.3
1,2-Dichlorobenzene	NA	NA	9.0E-02	5.7E-02	0.5	NA	47	600	47
1,3,5-Trinitrobenzene	NA	NA	5.0E-05	NA	0	NA	0.18	NA	0.18
1,3-Dichlorobenzene	NA	NA	NA	NA	0.5	NA	NA	600	NA
1,3-Dinitrobenzene	NA	NA	1.0E-04	NA	0	NA	0.37	NA	0.37
1,4-Dichlorobenzene	2.4E-02	NA	NA	2.3E-01	0.5	0.35	224	75	0.35
1,4-Naphthaquinone	NA	NA	NA	NA	0	NA	NA	NA	NA
1-Hexadecyne	NA	NA	NA	NA	0	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	0	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	3.0E-02	NA	0	NA	110	NA	110
2,4,5-Trichlorophenol	NA	NA	1.0E-01	NA	0	NA	365	NA	365
2,4,6-Trichlorophenol	1.1E-02	1.1E-02	NA	NA	0	0.77	NA	NA	0.77
2,4-Dichlorophenol	NA	NA	3.0E-03	NA	0	NA	11	NA	11
2,4-Dimethylphenol	NA	NA	2.0E-02	NA	0	NA	73	NA	73
2,4-Dinitrophenol	NA	NA	2.0E-03	NA	0	NA	7.3	NA	7.3
2,4-Dinitrotoluene	6.8E-01	NA	2.0E-03	NA	0	0.013	7.3	NA	0.013
2,6-Dichlorophenol	NA	NA	NA	NA	0.5	NA	NA	NA	NA
2,6-Dinitrotoluene	6.8E-01	NA	1.0E-03	NA	0	0.013	3.7	NA	0.013
2-Acetylaminofluorene	NA	NA	NA	NA	0	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	8.0E-02	NA	0	NA	292	NA	292
2-Chlorophenol	NA	NA	5.0E-03	NA	0	NA	18	NA	18
2-Methylnaphthalene [7]	NA	NA	NA	NA	0	NA	NA	NA	146
2-Methylphenol	NA	NA	5.0E-02	NA	0	NA	183	NA	183
2-Naphthylamine	NA	NA	NA	NA	0	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	6.0E-05	0	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	0	NA	NA	NA	NA
3,3'-Dichlorobenzidine	4.5E-01	NA	NA	NA	0	0.019	NA	NA	0.019
3,3'-Dimethylbenzidine	9.2E+00	NA	NA	NA	0	0.00093	NA	NA	0.00093
3-Methylcholanthrene	NA	NA	NA	NA	0	NA	NA	NA	NA
3-Methylphenol	NA	NA	5.0E-02	NA	0	NA	183	NA	183
3-Nitrophenol	NA	NA	NA	NA	0	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	0.5	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	0	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	5.8E-02	NA	0	NA	212	NA	212
4-Chloro-3-methylphenol [8]	NA	NA	NA	NA	0	NA	NA	NA	NA
4-Chloroaniline	NA	NA	4.0E-03	NA	0	NA	15	NA	15
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	0	NA	NA	NA	NA
4-Methylphenol	NA	NA	5.0E-03	NA	0	NA	18	NA	18
4-Nitroaniline	NA	NA	3.0E-03	NA	0	NA	11	NA	11
4-Nitrophenol	NA	NA	6.2E-02	NA	0	NA	226	NA	226
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	0	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	0	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	0	NA	NA	NA	NA
Acenaphthene	NA	NA	6.0E-02	NA	0	NA	219	NA	219
Acenaphthylene	NA	NA	NA	NA	0.5	NA	NA	NA	NA
Acetophenone	NA	NA	1.0E-01	1.0E+01	0.5	NA	0.0055	NA	0.0055
Aniline	5.7E-03	NA	NA	2.9E-04	0	1.5	NA	NA	1.5
Anthracene	NA	NA	3.0E-01	NA	0	NA	1,095	NA	1,095
Aramite	2.5E-02	2.5E-01	5.0E-02	NA	0	0.34	183	NA	0.34
Benzo(a)anthracene	1.1E+00	8.9E-01	NA	NA	0	0.0077	NA	0.1	0.0077
Benzo(a)pyrene	7.3E+00	6.1E+00	NA	NA	0	0.0012	NA	0.2	0.0012
Benzo(b)fluoranthene	9.0E-01	7.5E-01	NA	NA	0	0.0095	NA	0.2	0.0095
Benzo(g,h,i)perylene	NA	NA	NA	NA	0	NA	NA	NA	NA
Benzo(k)fluoranthene	3.6E-01	3.2E-01	NA	NA	0	0.022	NA	0.2	0.022
Benzoic Acid	NA	NA	4.0E+00	NA	0	NA	14,600	NA	14,600
Benzyl alcohol	NA	NA	3.0E-01	NA	0	NA	1,095	NA	1,095
Butyl benzyl phthalate	NA	NA	2.0E-01	NA	0	NA	730	100	730
Carbazole	2.0E-02	NA	NA	NA	0	0.43	NA	NA	0.43
Chlorobenzilate	NA	NA	2.0E-02	NA	0	NA	73	NA	73
Chrysene	3.2E-02	2.7E-02	NA	NA	0	0.27	NA	0.2	0.20
Di-n-butylphthalate	NA	NA	1.0E-01	NA	0	NA	365	NA	365
Di-n-octylphthalate	NA	NA	2.0E-02	NA	0	NA	73	NA	73
Diallate	6.1E-02	NA	NA	NA	0.5	0.14	NA	NA	0.14
Dibenzo(a,h)anthracene	8.1E+00	6.8E+00	NA	NA	0	0.0011	NA	0.3	0.0011
Dibenzofuran	NA	NA	4.0E-03	NA	0	NA	15	NA	15
Diethyl phthalate	NA	NA	8.0E-01	NA	0	NA	2,920	NA	2,920
Dimethoate	NA	NA	2.0E-04	NA	0	NA	0.73	NA	0.73
Dimethyl phthalate	NA	NA	1.0E+01	NA	0	NA	36,500	NA	36,500
Diphenylamine	NA	NA	2.5E-02	NA	0	NA	91	NA	91
Ethyl methanesulfonate	NA	NA	NA	NA	0	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	0	NA	NA	NA	NA
Fluoranthene	NA	NA	4.0E-02	NA	0	NA	146	NA	146
Fluorene	NA	NA	4.0E-02	NA	0	NA	146	NA	146
Hexachlorobenzene	1.6E+00	1.6E+00	8.0E-04	NA	0.5	0.0011	2.9	1	0.0011
Hexachlorobutadiene	7.8E-02	7.7E-02	NA	NA	0.5	0.023	NA	NA	0.023
Hexachlorocyclpentadiene	NA	NA	7.0E-03	2.0E-05	0.5	NA	0.019	50	0.019
Hexachloroethane	1.4E-02	1.4E-02	1.0E-03	NA	0.5	0.13	3.7	NA	0.13
Hexachlorophene	NA	NA	3.0E-04	NA	0	NA	1.1	NA	1.1
Hexachloropropene	NA	NA	NA	NA	0	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0E+00	1.7E+00	NA	NA	0	0.0043	NA	0.4	0.0043
Isodrin	NA	NA	NA	NA	0	NA	NA	NA	NA
Isophorone	9.5E-04	NA	2.0E-01	NA	0	9.0	730	NA	9.0
Isosafrole	NA	NA	NA	NA	0	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	0	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	0	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	0	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	7.0E+00	NA	NA	NA	0	0.0012	NA	NA	0.0012
N-Nitroso-di-n-butylamine	5.4E+00	5.6E+00	NA	NA	0	0.0016	NA	NA	0.0016

TABLE A.III-2 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables					Cw (ug/L)		MCL (ug/L)	Screening Level [2] (ug/L)
	SFo (mg/kg/day)$^{-1}$	SFi (mg/kg/day)$^{-1}$	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)		
Semivolatile Organic Compounds, ug/L (Con't.)									
N-Nitrosodiethylamine	1.5E+02	1.5E+02	NA	NA	0	0.000057	NA	NA	0.000057
N-Nitrosodimethylamine	5.1E+01	4.9E+01	NA	NA	0	0.00017	NA	NA	0.00017
N-Nitrosodiphenylamine	4.9E-03	NA	NA	NA	0	1.7	NA	NA	1.7
N-Nitrosomethylethylamine	2.2E+01	NA	NA	NA	0	0.00039	NA	NA	0.00039
N-Nitrosomorpholine	NA	NA	NA	NA	0	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	0	NA	NA	NA	NA
N-Nitrosopyrrolidine	2.1E+00	2.1E+00	NA	NA	0	0.00406	NA	NA	0.00406
Naphthalene	NA	NA	4.0E-02	NA	0	NA	146	NA	146
Nitrobenzene	NA	NA	5.0E-04	5.7E-04	0.5	NA	0.43	NA	0.43
o,o,o-Triethylphosphorothioate	NA	NA	NA	NA	0	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	8.0E-04	NA	0.5	NA	2.9	NA	2.9
Pentachloronitrobenzene	2.6E-01	NA	3.0E-03	NA	0.5	0.033	11	NA	0.033
Pentachlorophenol	1.2E-01	NA	3.0E-02	NA	0	0.071	110	1	0.071
Phenacetin	NA	NA	NA	NA	0	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	0	NA	NA	NA	NA
Phenol	NA	NA	6.0E-01	NA	0	NA	2,190	NA	2,190
Phorate	NA	NA	2.0E-04	NA	0	NA	0.73	NA	0.73
Pronamide	NA	NA	7.5E-02	NA	0	NA	274	NA	274
Pyrene	NA	NA	3.0E-02	NA	0	NA	110	NA	110
Safrole	NA	NA	NA	NA	0	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	0	NA	NA	NA	NA
Tributyl phosphate	NA	NA	5.0E-03	NA	0	NA	18	NA	18
a,a-Dimethylphenethylamine	NA	NA	NA	NA	0	NA	NA	NA	NA
Bis(2-Chloroethoxy)methane	NA	NA	NA	NA	0	NA	NA	NA	NA
Bis(2-Chloroethyl)ether	NA	1.1E+00	NA	NA	0.5	0.00206	NA	NA	0.00206
Bis(2-Chloroisopropyl)ether	7.0E-02	3.5E-02	NA	NA	0.5	0.042	NA	NA	0.042
Bis(2-ethylhexyl)phthalate	1.4E-02	NA	2.0E-02	NA	0	0.61	73	6	0.61
o-Toluidine	NA	NA	NA	NA	0	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	0	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	1.9E-01	NA	0	NA	694	NA	694
Azinphosmethyl	NA	NA	NA	NA	0	NA	NA	NA	NA

TABLE A.III-2 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables: SFo (mg/kg/day)$^{-1}$	SFi (mg/kg/day)$^{-1}$	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	Cw (ug/L): SF-Based (TR=1.0E-07)	Cw (ug/L): RfD-Based (THQ=0.1)	MCL (ug/L)	Screening Level [2] (ug/L)
Pesticides/PCBs, ug/L									
4-4'-DDD	2.4E-01	NA	NA	NA	0	0.035	NA	NA	0.035
4-4'-DDE	3.4E-01	NA	NA	NA	0	0.025	NA	NA	0.025
4-4'-DDT	3.4E-01	NA	5.0E-04	NA	0	0.025	1.8	NA	0.025
Aldrin	1.7E+01	1.7E+01	3.0E-05	NA	0	0.00050	0.11	NA	0.00050
Arochlor 1016	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1221	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1232	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1242	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1248	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1254	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Arochlor 1260	7.7E+00	NA	NA	NA	0	0.0011	NA	0.5	0.0011
Chlordane	1.3E+00	1.3E+00	6.0E-05	NA	0	0.0066	0.22	2	0.0066
Demeton	NA	NA	4.0E-05	NA	0	NA	0.15	NA	0.15
Diazinon	NA	NA	9.0E-04	NA	0	NA	3.3	NA	3.3
Dieldrin	1.6E+01	1.6E+01	5.0E-05	NA	0	0.00053	0.18	NA	0.00053
Disulfoton	NA	NA	4.0E-05	NA	0	NA	0.15	NA	0.15
Endosulfan II [10]	NA	NA	6.0E-03	NA	0.5	NA	21.9	NA	21.9
Endosulfan sulfate [11]	NA	NA	NA	NA	0.5	NA	NA	NA	21.9
Endosulfan I [10]	NA	NA	6.0E-03	NA	0.5	NA	21.9	NA	21.9
Endrin	NA	NA	3.0E-04	NA	0	NA	1.1	2	1.1
Endrin aldehyde [12]	NA	NA	NA	NA	0	NA	NA	NA	1.1
Endrin ketone	NA	NA	NA	NA	0	NA	NA	NA	NA
Ethion	NA	NA	5.0E-04	NA	0	NA	1.8	NA	1.8
Heptachlor	4.5E+00	4.6E+00	5.0E-04	NA	0.5	0.00039	1.8	0.4	0.00039
Heptachlor epoxide	9.1E+00	9.1E+00	1.3E-05	NA	0.5	0.00020	0.047	0.2	0.00020
Malathion	NA	NA	2.0E-02	NA	0	NA	73	NA	73
Methoxychlor	NA	NA	5.0E-03	NA	0	NA	18	40	18
Ethyl parathion	NA	NA	NA	NA	0	NA	NA	NA	NA
Methyl parathion	NA	NA	2.5E-04	NA	0	NA	0.91	NA	0.91
Toxaphene	1.1E+00	1.1E+00	NA	NA	0	0.0077	NA	3	0.0077
Alpha-BHC	6.3E+00	6.3E+00	NA	NA	0	0.0014	NA	NA	0.0014
Alpha-Chlordane	1.3E+00	1.3E+00	6.0E-05	NA	0	0.0066	0.22	NA	0.0066
Beta-BHC	1.8E+00	1.9E+00	NA	NA	0	0.0047	NA	NA	0.0047
Delta-BHC	NA	NA	NA	NA	0	NA	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	3.0E-04	NA	0	NA	1.1	NA	1.1
Gamma-Chlordane	1.3E+00	1.3E+00	6.0E-05	NA	0	0.0066	0.22	NA	0.0066
Dioxins/Furans, ug/L [13]									
Dioxins									
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.5E+05	1.5E+05	NA	NA	0	0.000000057	NA	0.00003	5.7E-08
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	0	0.000005678	NA	NA	5.7E-06
Heptachlorodibenzo-p-dioxins	NA	NA	NA	NA	0	0.000005678	NA	NA	5.7E-06
Octachlorodibenzo-p-dioxin	NA	NA	NA	NA	0	0.000056778	NA	NA	5.7E-05
Furans									
2,3,7,8-tetrachlorodibenzofuran	NA	NA	NA	NA	0	0.000000568	NA	NA	5.7E-07
Tetrachlorodibenzofurans	NA	NA	NA	NA	0	0.000000568	NA	NA	5.7E-07
1,2,3,7,8-pentachlorodibenzofuran	NA	NA	NA	NA	0	0.000001136	NA	NA	1.1E-06
2,3,4,7,8-pentachlorodibenzofuran	NA	NA	NA	NA	0	0.000000114	NA	NA	1.1E-07
Pentachlorodibenzofurans	NA	NA	NA	NA	0	0.000000114	NA	NA	1.1E-07
Hexachlorodibenzofurans	NA	NA	NA	NA	0	0.000000568	NA	NA	5.7E-07
Heptachlorodibenzofurans	NA	NA	NA	NA	0	0.000005678	NA	NA	5.7E-06
Octachlorodibenzofuran	NA	NA	NA	NA	0	0.000056778	NA	NA	5.7E-05
Herbicides, ug/L									
2,4,5-T	NA	NA	1.0E-02	NA	0	NA	37	NA	37
2,4,5-TP (Silvex)	NA	NA	8.0E-03	NA	0	NA	29	50	29
2,4-D	NA	NA	1.0E-02	NA	0.5	NA	37	70	37
Dinoseb	NA	NA	1.0E-03	NA	0	NA	3.7	7	3.7

TABLE A.III-2 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables					Cw (mg/L)		MCL (mg/L)	Screening Level [2] (mg/L)
	SFo (mg/kg/day)$^{-1}$	SFi (mg/kg/day)$^{-1}$	RfDo (mg/kg/day)	RfDi (mg/kg/day)	K [1] (L/m3)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)		
Inorganics, mg/L									
Aluminum	NA	NA	2.9E+00	NA	0	NA	10.58500	NA	NA
Antimony	NA	NA	4.0E-04	NA	0	NA	0.0015	0.006	0.0015
Arsenic	1.8E+00	1.5E+01	3.0E-04	NA	0	0.0000049	0.0011	0.05	0.0000049
Barium	NA	NA	7.0E-02	1.4E-04	0	NA	0.26	2	0.26
Beryllium	4.3E+00	8.4E+00	5.0E-03	NA	0	0.0000020	0.018	0.004	0.0000020
Boron	NA	NA	9.0E-02	5.7E-03	0	NA	0.33	NA	0.33
Cadmium	NA	6.3E+00	5.0E-04	NA	0	NA	0.0018	0.005	0.0018
Calcium	NA	NA	NA	NA	0	NA	NA	NA	NA
Chromium, hexavalent	NA	4.2E+01	5.0E-03	NA	0	NA	0.018	0.1	0.018
Chromium, trivalent	NA	NA	1.0E+00	NA	0	NA	3.7	NA	3.7
Cobalt	NA	NA	6.0E-02	3.0E-07	0	NA	0.22	NA	0.22
Copper	NA	NA	3.7E-02	NA	0	NA	0.14	NA	0.14
Cyanide	NA	NA	2.0E-02	NA	0	NA	0.073	0.2	0.073
Iron	NA	NA	NA	NA	0	NA	NA	NA	NA
Lead	NA	NA	NA	NA	0	NA	NA	NA	NA
Magnesium	NA	NA	9.7E+00	NA	0	NA	35	NA	35
Manganese	NA	NA	5.0E-03	1.4E-05	0	NA	0.018	NA	0.018
Mercury	NA	NA	3.0E-04	8.6E-05	0	NA	0.0011	0.002	0.0011
Molybdenum	NA	NA	5.0E-03	NA	0	NA	0.018	NA	0.018
Nickel	NA	8.4E-01	2.0E-02	NA	0	NA	0.073	0.1	0.073
Osmium	NA	NA	NA	NA	0	NA	NA	NA	NA
Selenium	NA	NA	5.0E-03	NA	0	NA	0.018	0.05	0.018
Silver	NA	NA	5.0E-03	NA	0	NA	0.018	NA	0.018
Thallium	NA	NA	7.0E-05	NA	0	NA	0.00026	0.002	0.00026
Tin	NA	NA	6.0E-01	NA	0	NA	2.2	NA	2.2
Vanadium	NA	NA	7.0E-03	NA	0	NA	0.026	NA	0.026
Zinc	NA	NA	3.0E-01	NA	0	NA	1.1	NA	1.1
Conventional Parameters, mg/L									
Ammonia	NA	NA	NA	2.9E-02	0	NA	NA	NA	NA
Fluoride	NA	NA	6.0E-02	NA	0	NA	0.22	4	0.22
Nitrate	NA	NA	1.6E+00	NA	0	NA	5.8	10	5.8
Nitrite	NA	NA	1.0E-01	NA	0	NA	0.37	1	0.37
Sulfate [14]	NA	NA	NA	NA	NA	NA	NA	250	250

Notes:

[1] Default value = 0.5 used for organics with Henry's Law constant (H) > 1E-05; 0 was used for organics with H < 1E-05 and inorganics.
[2] The screening level selected for each constituent represents the minimum value of the risk-based concentrations and MCL.
[3] Screening levels for radionuclides are not to be used for COC selection in the risk assessment, but rather as points of reference only for the purposes of fate and transport modeling.
[4] "+D" indicates that risks from primary decay chain products are incorporated into the slope factor presented.
[5] The SFi for Rn-222+4D is used for Ra-226+5D and Ra-226+8D since this is a daughter product in both decay chains.
[6] Slope factors will be used to evaluate future exposure scenarios involving parent isotope in equilibrium with daughters.
[7] Screening level for naphthalene used as a surrogate.
[8] Screening level for 2-methylphenol used as a surrogate.
[9] Oral RfD acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.
[10] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk-Based Concentrations) used for endosulfan I and II.
[11] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[12] Screening level for endrin used as a surrogate.
[13] Risk-based concentrations (RBC) for dioxin/furan congeners were calculated by dividing the 2378-TCDD RBC by the toxic equivalent factor (TEF) presented in Table A.4-
[14] Secondary MCL for sulfate.
NA - Not applicable
CSV - Constituent-specific value

TABLE A.III-3
RISK-BASED SCREENING LEVELS FOR
RADIONUCLIDES AND CHEMICALS IN SOILS/SEDIMENTS
RESIDENTIAL SCENARIO
FERNALD ENVIRONMENTAL MANAGEMENT PROJECT, FERNALD, OHIO
OPERABLE UNIT #5

FILE: SOSDSL.WK3
REVISED: 05-23-94

This spreadsheet calculates risk-based soil/sediment concentrations under an adult residential soil exposure scenario. The risk-based concentrations will be used as screening levels for the selection of CPCs in soils and sediments. Spreadsheet calculations and input values for exposure parameters are based on those presented in RAGS, Part 1B (U.S. EPA, 1991). Screening levels calculated for carcinogenic and noncarcinogenic constituents of 1.0E-07 and 0.1, respectively.

1.) Calculation of risk-based concentration for radionuclides in soil:
$Cs = TR/[(SFo \times EF \times IFr \times CFr) + (ED \times SFe \times (1-Se) \times Te)]$

2.) Calculation of risk-based concentration for carcinogenic chemicals in soil:
2a.) Organics:
$Cs = (TR \times ATc)/(SFo \times CFo \times EF \times IFc)$
2b.) Inorganics:
$Cs = (TR \times ATc)/(SFo \times CFi \times EF \times IFc)$

3.) Calculation of risk-based concentration for noncarcinogenic chemicals in soil:
3a.) Organics:
$Cs = (THQ \times ATn)/[(1/RfDo) \times CFo \times EF \times IFc)]$
3b.) Inorganics:
$Cs = (THQ \times ATn)/[(1/RfDo) \times CFi \times EF \times IFc)]$

4.) Calculation of IF (age-adjusted soil ingestion factor):
4a.) Radionuclides:
$IFr = (IRc \times EDc) + (IRa \times EDa)$
4a.) Chemicals:
$IFc = [(IRc \times EDc)/BWc] + [(IRa \times EDa)/BWa]$

Parameter	Description (Units)	Constants
Cs	Risk-based concentration of constituent in soils (pCi/g, ug/Kg, mg/Kg)	NA
TR	Target risk level (unitless)	1.0E-07
THQ	Target hazard quotient (unitless)	1.0E-01
SFo	Oral cancer slope factor (Risk/pCi; kg-day/mg)	CSV
SFe	Cancer slope factor, external radiation (Risk-g/pCi-yr)	CSV
RfDo	Oral reference dose (mg/kg/day)	CSV
BWc	Body weight, child (kg)	15
BWa	Body weight, adult (kg)	70
ATc	Averaging time (carcinogen) = 70 years x 365 days/year	25550
ATn	Averaging time (noncarcinogen) = ED (30 years) x 365 days/year	10950
IRc	Daily water ingestion rate, child (mg/day)	200
IRa	Daily water ingestion rate, adult (mg/day)	100
EDc	Exposure duration, child (years)	6
EDa	Exposure duration, adult (years)	24
ED	Exposure duration, (years)	30
IFr	Age-adjusted ingestion factor, radionuclides (mg-yr/day)	3600
IFc	Age-adjusted ingestion factor, chemicals (mg-yr/kg-day)	114
EF	Exposure frequency (days/year)	350
CFr	Conversion factor, radionuclides (g/mg)	1.0E-03
CFo	Conversion factor, organics (0.001 ug-chem/mg-chem x 0.000001 kg-soil/mg-soil)	1.0E-09
CFi	Conversion factor, inorganics (kg/mg)	1.0E-06
Se	Gamma shielding factor (unitless)	0.2
Te	Gamma exposure time factor (unitless)	1

Radionuclide/Chemical	Constituent-Specific Variables			Cs (pCi/g)		SCREENING LEVEL (pCi/g)
	SFo (Risk/pCi)	SFe (Risk-g pCi-yr)	RfDo (mg/kg/day)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	
Radionuclides, pCi/g						
Actinium-227	2.8E-10	2.6E-11	NA	0.28	NA	0.28
Actinium-227+7D [2]	3.5E-10	8.5E-07	NA	0.0048	NA	0.0048
Cesium-137	2.8E-11	0.0E+00	NA	2.8	NA	2.8
Cesium-137+1D	2.8E-11	2.0E-06	NA	0.0021	NA	0.0021
Lead-210	5.1E-10	1.3E-10	NA	0.15	NA	0.15
Lead-210+2D	6.6E-10	1.6E-10	NA	0.12	NA	0.12
Neptunium-237	2.2E-10	7.8E-09	NA	0.22	NA	0.22
Neptunium-237+1D	2.2E-10	4.3E-07	NA	0.0094	NA	0.0094
Plutonium-238	2.2E-10	2.8E-11	NA	0.36	NA	0.36
Plutonium-239	2.3E-10	2.7E-11	NA	0.34	NA	0.34
Plutonium-240	2.3E-10	2.7E-11	NA	0.34	NA	0.34
Polonium-210	1.5E-10	2.9E-11	NA	0.53	NA	0.53
Potassium-40	1.1E-11	5.4E-07	NA	0.0077	NA	0.0077
Protactinium-231	9.2E-11	2.6E-08	NA	0.14	NA	0.14
Radium-224	3.8E-11	2.3E-08	NA	0.17	NA	0.17
Radium-226	1.2E-10	1.2E-08	NA	0.23	NA	0.23
Radium-226+5D [3]	1.2E-10	6.0E-06	NA	0.00069	NA	0.00069

TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables			Cs (pCi/g)		SCREENING LEVEL (pCi/g)
	SFo (Risk/pCi)	SFe (Risk-g pCi-yr)	RfDo (mg/kg/day)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	
Radionuclides, pCi/g (Con't.)						
Radium-226+8D [3][4]	7.8E-10	6.0E-06	NA	0.00069	NA	0.00069
Radium-228	1.0E-10	0.0E+00	NA	0.79	NA	0.79
Radium-228+1D	1.0E-10	2.9E-06	NA	0.0014	NA	0.0014
Radon-222	1.4E-12	1.2E-09	NA	3.3	NA	3.3
Radon-222+4D	1.7E-12	5.9E-06	NA	0.00071	NA	0.00071
Ruthenium-106	9.5E-12	0.0E+00	NA	8.4	NA	8.4
Strontium-90	3.3E-11	0.0E+00	NA	2.4	NA	2.4
Strontium-90+1D	3.6E-11	0.0E+00	NA	2.2	NA	2.2
Technetium-99	1.3E-12	6.0E-13	NA	61	NA	61
Thorium-228	1.1E-11	5.5E-10	NA	3.7	NA	3.7
Thorium-228+7D	5.5E-11	5.6E-06	NA	0.00074	NA	0.00074
Thorium-230	1.3E-11	5.4E-11	NA	5.7	NA	5.7
Thorium-232	1.2E-11	2.6E-11	NA	6.4	NA	6.4
Thorium-232+10D [4]	1.7E-10	8.5E-06	NA	0.00049	NA	0.00049
Thorium-234	4.0E-12	3.5E-09	NA	1.1	NA	1.1
Uranium-233	1.6E-11	4.2E-11	NA	4.7	NA	4.7
Uranium-234	1.6E-11	3.0E-11	NA	4.8	NA	4.8
Uranium-235	1.6E-11	2.4E-07	NA	0.017	NA	0.017
Uranium-235+1D	1.6E-11	2.4E-07	NA	0.017	NA	0.017
Uranium-236	1.5E-11	2.4E-11	NA	5.1	NA	5.1
Uranium-238	1.6E-11	2.1E-11	NA	4.8	NA	4.8
Uranium-238+2D	2.8E-11	3.6E-08	NA	0.11	NA	0.11

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TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables SFo (mg/kg/day)$^{-1}$	SFe (Risk-g / pCi-yr)	RfDo (mg/kg/day)	Cs (ug/kg) SF-Based (TR=1.0E-07)	Cs (ug/kg) RfD-Based (THQ=0.1)	SCREENING LEVEL (ug/kg)
Volatile Organic Compounds, ug/kg						
1,1,1,2-Tetrachloroethane	2.6E-02	NA	3.0E-02	2,457	821,250	2,457
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	2.0E-01	NA	NA	319	NA	319
1,1,2-Trichloroethane	5.7E-02	NA	4.0E-03	1,121	109,500	1,121
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	6.0E-01	NA	9.0E-03	106	246,375	106
1,2,3-Trichloropropane	NA	NA	6.0E-03	NA	164,250	164,250
1,2-Dibromo-3-chloropropane	1.4E+00	NA	NA	46	NA	46
1,2-Dibromoethane	8.5E+01	NA	NA	0.75	NA	0.75
1,2-Dichloroethane	9.1E-02	NA	NA	702	NA	702
cis-1,2-Dichloroethene	NA	NA	1.0E-02	NA	273,750	273,750
1,4-Dioxane	1:1E-02	NA	NA	5,807	NA	5,807
2-Butanone	NA	NA	6.0E-01	NA	16,425,000	16,425,000
2-Chloro-1,3-butadiene	NA	NA	NA	NA	NA	NA
2-Chloroethylvinyl ether	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	4.0E-02	NA	1,095,000	1,095,000
2-Picoline	NA	NA	NA	NA	NA	NA
3-Chloropropene	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	5.0E-02	NA	1,368,750	1,368,750
Acetone	NA	NA	1.0E-01	NA	2,737,500	2,737,500
Acetonitrile	NA	NA	6.0E-03	NA	164,250	164,250
Acrolein	NA	NA	NA	NA	NA	NA
Acrylonitrile	5.4E-01	NA	NA	118	NA	118
Benzene	2.9E-02	NA	NA	2,203	NA	2,203
Bromochloromethane	NA	NA	NA	NA	NA	NA
Bromodichloromethane	6.2E-02	NA	2.0E-02	1,030	547,500	1,030
Bromoform	7.9E-03	NA	2.0E-02	8,085	547,500	8,085
Bromomethane	NA	NA	1.4E-03	NA	38,325	38,325
Carbon tetrachloride	1.3E-01	NA	7.0E-04	491	19,163	491
Carbon disulfide	NA	NA	1.0E-01	NA	2,737,500	2,737,500
Chlorobenzene	NA	NA	2.0E-02	NA	547,500	547,500
Chloroethane	NA	NA	NA	NA	NA	NA
Chloroform	6.1E-03	NA	1.0E-02	10,471	273,750	10,471
Chloromethane	1.3E-02	NA	NA	4,913	NA	4,913
Cumene	NA	NA	4.0E-02	NA	1,095,000	1,095,000
Dibromochloromethane	8.4E-02	NA	2.0E-02	760	547,500	760
Dibromomethane	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA
Dichlorodifluoromethane	NA	NA	2.0E-01	NA	5,475,000	5,475,000
Ethyl cyanide	NA	NA	NA	NA	NA	NA
Ethyl methacrylate	NA	NA	9.0E-02	NA	2,463,750	2,463,750
Methyl methacrylate	NA	NA	8.0E-02	NA	2,190,000	2,190,000
Ethylbenzene	NA	NA	1.0E-01	NA	2,737,500	2,737,500
Iodomethane	NA	NA	NA	NA	NA	NA
Isobutyl alcohol	NA	NA	3.0E-01	NA	8,212,500	8,212,500
Methacrylonitrile	NA	NA	NA	NA	NA	NA
Methylene chloride	7.5E-03	NA	6.0E-02	8,517	1,642,500	8,517
Pentachloroethane	NA	NA	NA	NA	NA	NA
Pyridine	NA	NA	1.0E-03	NA	27,375	27,375
Styrene	3.0E-02	NA	2.0E-01	2,129	5,475,000	2,129
Tetrachloroethene	5.2E-02	NA	1.0E-02	1,228	273,750	1,228
Toluene	NA	NA	2.0E-01	NA	5,475,000	5,475,000
Total Xylenes	NA	NA	2.0E+00	NA	54,750,000	54,750,000
Trichloroethene	1.1E-02	NA	6.0E-03	5,807	164,250	5,807
Trichlorofluoromethane	NA	NA	3.0E-01	NA	8,212,500	8,212,500
Vinyl acetate	NA	NA	1.0E+00	NA	27,375,000	27,375,000
Vinyl chloride	1.9E+00	NA	NA	34	NA	34
cis-1,3-Dichloropropene	1.8E-01	NA	NA	355	NA	491
total-1,2-Dichloroethene	NA	NA	9.0E-03			
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA
trans-1,2-Dichloroethene	NA	NA	2.0E-02	NA	547,500	547,500
trans-1,3-Dichloropropene	1.8E-01	NA	NA	355	NA	355

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TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables SFo (mg/kg/day)$^{-1}$	SFe (Risk-g pCi-yr)	RfDo (mg/kg/day)	Cs (ug/kg) SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	SCREENING LEVEL (ug/kg)
Semivolatile Organic Compounds, ug/kg						
1,2,4,5-Tetrachlorobenzene	NA	NA	3.0E-04	NA	8,213	8,213
1,2,4-Trichlorobenzene	NA	NA	1.0E-02	NA	273,750	273,750
1,2-Dichlorobenzene	NA	NA	9.0E-02	NA	2,463,750	2,463,750
1,3,5-Trinitrobenzene	NA	NA	5.0E-05	NA	1,369	1,369
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA
1,3-Dinitrobenzene	NA	NA	1.0E-04	NA	2,738	2,738
1,4-Dichlorobenzene	2.4E-02	NA	NA	2,661	NA	2,661
1,4-Naphthaquinone	NA	NA	NA	NA	NA	NA
1-Hexadecyne	NA	NA	NA	NA	NA	NA
1-Naphthylamine	NA	NA	NA	NA	NA	NA
2,3,4,6-Tetrachlorophenol	NA	NA	3.0E-02	NA	821,250	821,250
2,4,5-Trichlorophenol	NA	NA	1.0E-01	NA	2,737,500	2,737,500
2,4,6-Trichlorophenol	1.1E-02	NA	NA	5,807	NA	5,807
2,4-Dichlorophenol	NA	NA	3.0E-03	NA	82,125	82,125
2,4-Dimethylphenol	NA	NA	2.0E-02	NA	547,500	547,500
2,4-Dinitrophenol	NA	NA	2.0E-03	NA	54,750	54,750
2,4-Dinitrotoluene	6.8E-01	NA	2.0E-03	94	54,750	94
2,6-Dichlorophenol	NA	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	6.8E-01	NA	1.0E-03	94	27,375	94
2-Acetylaminofluorene	NA	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	8.0E-02	NA	2,190,000	2,190,000
2-Chlorophenol	NA	NA	5.0E-03	NA	136,875	136,875
2-Methylnaphthalene [5]	NA	NA	NA	NA	NA	1,095,000
2-Methylphenol	NA	NA	5.0E-02	NA	1,368,750	1,368,750
2-Naphthylamine	NA	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	4.5E-01	NA	NA	142	NA	142
3,3'-Dimethylbenzidine	9.2E+00	NA	NA	6.9	NA	6.9
3-Methylcholanthrene	NA	NA	NA	NA	NA	NA
3-Methylphenol	NA	NA	5.0E-02	NA	1,368,750	1,368,750
3-Nitrophenol	NA	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA
4-Aminobiphenyl	NA	NA	NA	NA	NA	NA
4-Bromophenyl phenyl ether	NA	NA	5.8E-02	NA	1,587,750	1,587,750
4-Chloro-3-methylphenol [6]	NA	NA	NA	NA	NA	1,368,750
4-Chloroaniline	NA	NA	4.0E-03	NA	109,500	109,500
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA
4-Methylphenol	NA	NA	5.0E-03	NA	136,875	136,875
4-Nitroaniline	NA	NA	3.0E-03	NA	82,125	82,125
4-Nitrophenol	NA	NA	6.2E-02	NA	1,697,250	1,697,250
4-Nitroquinoline-1-oxide	NA	NA	NA	NA	NA	NA
5-Nitro-o-toluidine	NA	NA	NA	NA	NA	NA
7,12-Dimethylbenz(a)anthracene	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	6.0E-02	NA	1,642,500	1,642,500
Acenaphthylene	NA	NA	NA	NA	NA	NA
Acetophenone	NA	NA	1.0E-01	NA	2,737,500	2,737,500
Aniline	5.7E-03	NA	NA	11,206	NA	11,206
Anthracene	NA	NA	3.0E-01	NA	8,212,500	8,212,500
Aramite	2.5E-02	NA	5.0E-02	2,555	1,368,750	2,555
Benzo(a)anthracene	1.1E+00	NA	NA	58	NA	58
Benzo(a)pyrene	7.3E+00	NA	NA	8.8	NA	8.8
Benzo(b)fluoranthene	9.0E-01	NA	NA	71	NA	71
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	3.8E-01	NA	NA	168	NA	168
Benzoic Acid	NA	NA	4.0E+00	NA	109,500,000	109,500,000
Benzyl alcohol	NA	NA	3.0E-01	NA	8,212,500	8,212,500
Butyl benzyl phthalate	NA	NA	2.0E-01	NA	5,475,000	5,475,000
Carbazole	2.0E-02	NA	NA	3,194	NA	3,194
Chlorobenzilate	NA	NA	2.0E-02	NA	547,500	547,500
Chrysene	3.2E-02	NA	NA	1,996	NA	1,996
Di-n-butylphthalate	NA	NA	1.0E-01	NA	2,737,500	2,737,500
Di-n-octylphthalate	NA	NA	2.0E-02	NA	547,500	547,500
Diallate	6.1E-02	NA	NA	1,047	NA	1,047
Dibenzo(a,h)anthracene	8.1E+00	NA	NA	7.9	NA	7.9
Dibenzofuran [7]	NA	NA	4.0E-03	NA	109,500	109,500
Diethyl phthalate	NA	NA	8.0E-01	NA	21,900,000	21,900,000
Dimethoate	NA	NA	2.0E-04	NA	5,475	5,475
Dimethyl phthalate	NA	NA	1.0E+01	NA	273,750,000	273,750,000
Diphenylamine	NA	NA	2.5E-02	NA	684,375	684,375
Ethyl methanesulfonate	NA	NA	NA	NA	NA	NA
Famphur	NA	NA	NA	NA	NA	NA

TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables SFo (mg/kg/day)$^{-1}$	SFe (Risk-g pCi-yr)	RfDo (mg/kg/day)	Cs (ug/kg) SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	SCREENING LEVEL (ug/kg)
Semivolatile Organic Compounds, ug/kg (Con't.)						
Fluoranthene	NA	NA	4.0E-02	NA	1,095,000	1,095,000
Fluorene	NA	NA	4.0E-02	NA	1,095,000	1,095,000
Hexachlorobenzene	1.6E+00	NA	8.0E-04	40	21,900	40
Hexachlorobutadiene	7.8E-02	NA	NA	819	NA	819
Hexachlorocyclpentadiene	NA	NA	7.0E-03	NA	191,625	191,625
Hexachloroethane	1.4E-02	NA	1.0E-03	4,563	27,375	4,563
Hexachlorophene	NA	NA	3.0E-04	NA	8,213	8,213
Hexachloropropene	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	2.0E+00	NA	NA	32	NA	32
Isodrin	NA	NA	NA	NA	NA	NA
Isophorone	9.5E-04	NA	2.0E-01	67,237	5,475,000	67,237
Isosafrole	NA	NA	NA	NA	NA	NA
Kepone	NA	NA	NA	NA	NA	NA
Methapyrilene	NA	NA	NA	NA	NA	NA
Methyl methanesulfonate	NA	NA	NA	NA	NA	NA
N-Nitroso-di-n-propylamine	7.0E+00	NA	NA	9.1	NA	9.1
N-Nitroso-di-n-butylamine	5.4E+00	NA	NA	12	NA	12
N-Nitrosodiethylamine	1.5E+02	NA	NA	0.43	NA	0.43
N-Nitrosodimethylamine	5.1E+01	NA	NA	1.3	NA	1.3
N-Nitrosodiphenylamine	4.9E-03	NA	NA	13,036	NA	13,036
N-Nitrosomethylethylamine	2.2E+01	NA	NA	2.9	NA	2.9
N-Nitrosomorpholine	NA	NA	NA	NA	NA	NA
N-Nitrosopiperidine	NA	NA	NA	NA	NA	NA
N-Nitrosopyrrolidine	2.1E+00	NA	NA	30	NA	30
Naphthalene	NA	NA	4.0E-02	NA	1,095,000	1,095,000
Nitrobenzene	NA	NA	5.0E-04	NA	13,688	13,688
o,o,o-Triethylphosphorothioate	NA	NA	NA	NA	NA	NA
Pentachlorobenzene	NA	NA	8.0E-04	NA	21,900	21,900
Pentachloronitrobenzene	2.6E-01	NA	3.0E-03	246	82,125	246
Pentachlorophenol	1.2E-01	NA	3.0E-02	532	821,250	532
Phenacetin	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	6.0E-01	NA	16,425,000	16,425,000
Phorate	NA	NA	2.0E-04	NA	5,475	5,475
Pronamide	NA	NA	7.5E-02	NA	2,053,125	2,053,125
Pyrene	NA	NA	3.0E-02	NA	821,250	821,250
Safrole	NA	NA	NA	NA	NA	NA
Thionazin	NA	NA	NA	NA	NA	NA
Tributyl phosphate	NA	NA	5.0E-03	NA	136,875	136,875
a,a-Dimethylphenethylamine	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA
Bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA
Bis(2-Chloroisopropyl)ether	7.0E-02	NA	NA	913	NA	913
Bis(2-ethylhexyl)phthalate	1.4E-02	NA	2.0E-02	4,563	547,500	4,563
o-Toluidine	NA	NA	NA	NA	NA	NA
p-Dimethylaminoazobenzene	NA	NA	NA	NA	NA	NA
p-Phenylenediamine	NA	NA	1.9E-01	NA	5,201,250	5,201,250
Azinphosmethyl	NA	NA	NA	NA	NA	NA

TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables			Cs (ug/kg)		SCREENING LEVEL (ug/kg)
	SFo (mg/kg/day)$^{-1}$	SFe (Risk-g / pCi-yr)	RfDo (mg/kg/day)	SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	
Pesticides/PCBs, ug/kg						
4-4'-DDD	2.4E-01	NA	NA	266	NA	266
4-4'-DDE	3.4E-01	NA	NA	188	NA	188
4-4'-DDT	3.4E-01	NA	5.0E-04	188	13,688	188
Aldrin	1.7E+01	NA	3.0E-05	3.8	821	3.8
Arochlor 1016	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1221	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1232	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1242	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1248	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1254	7.7E+00	NA	NA	8.3	NA	8.3
Arochlor 1260	7.7E+00	NA	NA	8.3	NA	8.3
Chlordane	1.3E+00	NA	6.0E-05	49	1,643	49
Demeton	NA	NA	4.0E-05	NA	1,095	1,095
Diazinon	NA	NA	9.0E-04	NA	24,638	24,638
Dieldrin	1.6E+01	NA	5.0E-05	4.0	1,369	4.0
Disulfoton	NA	NA	4.0E-05	NA	1,095	1,095
Endosulfan II [8]	NA	NA	NA	NA	NA	164,250
Endosulfan sulfate [9]	NA	NA	NA	NA	NA	164,250
Endosulfan I [8]	NA	NA	NA	NA	NA	164,250
Endrin	NA	NA	3.0E-04	NA	8,213	8,213
Endrin aldehyde [10]	NA	NA	NA	NA	NA	8,213
Endrin ketone	NA	NA	NA	NA	NA	NA
Ethion	NA	NA	5.0E-04	NA	13,688	13,688
Heptachlor	4.5E+00	NA	5.0E-04	14	13,688	14
Heptachlor epoxide	9.1E+00	NA	1.3E-05	7.0	356	7.0
Malathion	NA	NA	2.0E-02	NA	547,500	547,500
Methoxychlor	NA	NA	5.0E-03	NA	136,875	136,875
Ethyl parathion	NA	NA	NA	NA	NA	NA
Methyl parathion	NA	NA	2.5E-04	NA	6,844	6,844
Toxaphene	1.1E+00	NA	NA	58	NA	58
Alpha-BHC	6.3E+00	NA	NA	10	NA	10
Alpha-Chlordane	1.3E+00	NA	6.0E-05	49	1,643	49
Beta-BHC	1.8E+00	NA	NA	35	NA	35
Delta-BHC	NA	NA	NA	NA	NA	NA
Gamma-BHC (Lindane)	NA	NA	3.0E-04	NA	8,213	8,213
Gamma-Chlordane	NA	NA	NA	NA	NA	49
Dioxins/Furans, ug/L [11]						
Dioxins						
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.5E+05	NA	NA	0.00043	NA	4.3E-04
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	NA	NA	NA	0.043	NA	4.3E-02
Heptachlorodibenzo-p-dioxins	NA	NA	NA	0.043	NA	4.3E-02
Octachlorodibenzo-p-dioxin	NA	NA	NA	0.426	NA	4.3E-01
Furans						
2,3,7,8-tetrachlorodibenzofuran	NA	NA	NA	0.0043	NA	4.3E-03
Tetrachlorodibenzofurans	NA	NA	NA	0.0043	NA	4.3E-03
1,2,3,7,8-pentachlorodibenzofuran	NA	NA	NA	0.0085	NA	8.5E-03
2,3,4,7,8-pentachlorodibenzofuran	NA	NA	NA	0.00085	NA	8.5E-04
Pentachlorodibenzofurans	NA	NA	NA	0.00085	NA	8.5E-04
Hexachlorodibenzofurans	NA	NA	NA	0.0043	NA	4.3E-03
Heptachlorodibenzofurans	NA	NA	NA	0.0426	NA	4.3E-02
Octachlorodibenzofuran	NA	NA	NA	0.426	NA	4.3E-01
Herbicides, ug/kg						
2,4,5-T	NA	NA	1.0E-02	NA	273,750	273,750
2,4,5-TP (Silvex)	NA	NA	8.0E-03	NA	219,000	219,000
2,4-D	NA	NA	1.0E-02	NA	273,750	273,750
Dinoseb	NA	NA	1.0E-03	NA	27,375	27,375

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TABLE A.III-3 (CON'T.)

Radionuclide/Chemical	Constituent-Specific Variables SFo (mg/kg/day)$^{-1}$	SFe (Risk-g pCi-yr)	RfDo (mg/kg/day)	Cs (mg/kg) SF-Based (TR=1.0E-07)	RfD-Based (THQ=0.1)	SCREENING LEVEL (mg/kg)
Inorganics, mg/kg						
Aluminum	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	4.0E-04	NA	11	11
Arsenic	1.8E+00	NA	3.0E-04	0.037	8.2	0.037
Barium	NA	NA	7.0E-02	NA	1,916	1,916
Beryllium	4.3E+00	NA	5.0E-03	0.015	137	0.015
Boron	NA	NA	9.0E-02	NA	2,464	2,464
Cadmium	NA	NA	5.0E-04	NA	14	14
Calcium	NA	NA	NA	NA	NA	NA
Chromium, hexavalent	NA	NA	5.0E-03	NA	137	137
Chromium, trivalent	NA	NA	1.0E+00	NA	27,375	27,375
Cobalt	NA	NA	6.0E-02	NA	1,643	1,643
Copper	NA	NA	3.7E-02	NA	1,018	1,018
Cyanide	NA	NA	2.0E-02	NA	548	548
Iron	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	9.7E+00	NA	265,538	265,538
Manganese	NA	NA	5.0E-03	NA	137	137
Mercury	NA	NA	3.0E-04	NA	8.2	8.2
Molybdenum	NA	NA	5.0E-03	NA	137	137
Nickel	NA	NA	2.0E-02	NA	548	548
Osmium	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	5.0E-03	NA	137	137
Silver	NA	NA	5.0E-03	NA	137	137
Thallium	NA	NA	7.0E-05	NA	1.9	1.9
Tin	NA	NA	6.0E-01	NA	16,425	16,425
Vanadium	NA	NA	7.0E-03	NA	192	192
Zinc	NA	NA	3.0E-01	NA	8,213	8,213
Conventional Parameters, mg/kg						
Ammonia	NA	NA	NA	NA	NA	NA
Fluoride	NA	NA	6.0E-02	NA	1,643	1,643
Nitrate	NA	NA	1.6E+00	NA	43,800	43,800
Nitrite	NA	NA	1.0E-01	NA	2,738	2,738
Sulfate	NA	NA	NA	NA	NA	NA

Notes:

[1] Screening levels for radionuclides are not to be used as primary criterionin CPC serlection process.
[2] "+D" Indicates that risks from primary decay chain products are incorporated into the slope factor presented.
[3] The SFi for Rn-222+4D is used for Ra-226+5D and Ra-226+8D since this is a daughter product in both decay chains.
[4] Slope factors will be used to evaluate future exposure scenarios involving parent isotope in equilibrium with daughters.
[5] Screening level for naphthalene used as a surrogate.
[6] Screening level for 2-methylphenol used as a surrogate.
[7] Oral RfD acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.
[8] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk-Based Concentrations) used for endosulfan I and II.
[9] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[10] Screening level for endrin used as a surrogate.
[11] Risk-based concentrations (RBC) for dioxin/furan congeners were calculated by dividing the 2378-TCDD RBC by the toxic equivalent factor (TE
NA - Not applicable
CSV - Constituent-specific value

TABLE A.III – 4
ORGANIC CONTAMINANT TOXICITY SCREEN
SITE: FERNALD OPERABLE UNIT 5
DATE: 06–17–94
MEDIA: SURFACE SOILS
ENTERED: PBM/JKL
CHECKED: JKL
FILE: OU5SOCOC

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (Risk/pCi)	Overall Frequency of Detection	CMAX (pCi/g)	Screening Level (pCi/g)	RINC	RIC	ERINC	ERIC
Radionuclides										
Actinium–227	NA	NA	2.8E–10	NA		0.28	NA	NA	0.0E+00	0.0E+00
Actinium–227+7D	NA	NA	3.5E–10	NA		0.0048	NA	NA	0.0E+00	0.0E+00
Cesium–137	NA	NA	2.8E–11	NA		2.8	NA	NA	0.0E+00	0.0E+00
Cesium–137+1D	NA	NA	2.8E–11	NA		0.0021	NA	NA	0.0E+00	0.0E+00
Lead–210	NA	NA	5.1E–10	NA		0.15	NA	NA	0.0E+00	0.0E+00
Lead–210+2D	NA	NA	6.6E–10	NA		0.12	NA	NA	0.0E+00	0.0E+00
Neptunium–237	NA	NA	2.2E–10	NA		0.22	NA	NA	0.0E+00	0.0E+00
Neptunium–237+1D	NA	NA	2.2E–10	NA		0.0094	NA	NA	0.0E+00	0.0E+00
Plutonium–238	NA	NA	2.2E–10	NA		0.36	NA	NA	0.0E+00	0.0E+00
Plutonium–239	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Plutonium–240	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Polonium–210	NA	NA	1.5E–10	NA		0.53	NA	NA	0.0E+00	0.0E+00
Potassium–40	NA	NA	1.1E–11	NA		0.0077	NA	NA	0.0E+00	0.0E+00
Protactinium–231	NA	NA	9.2E–11	NA		0.14	NA	NA	0.0E+00	0.0E+00
Radium–224	NA	NA	3.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00
Radium–226	NA	NA	1.2E–10	NA		0.23	NA	NA	0.0E+00	0.0E+00
Radium–226+5D	NA	NA	1.2E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–226+8D [2]	NA	NA	7.8E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–228	NA	NA	1.0E–10	NA		0.79	NA	NA	0.0E+00	0.0E+00
Radium–228+1D	NA	NA	1.0E–10	NA		0.0014	NA	NA	0.0E+00	0.0E+00
Radon–222	NA	NA	1.4E–12	NA		3.3	NA	NA	0.0E+00	0.0E+00
Radon–222+4D	NA	NA	1.7E–12	NA		0.00071	NA	NA	0.0E+00	0.0E+00
Ruthenium–106	NA	NA	9.5E–12	NA		8.4	NA	NA	0.0E+00	0.0E+00
Strontium–90	NA	NA	3.3E–11	NA		2.4	NA	NA	0.0E+00	0.0E+00
Strontium–90+1D	NA	NA	3.6E–11	NA		2.2	NA	NA	0.0E+00	0.0E+00
Technetium–99	NA	NA	1.3E–12	NA		61	NA	NA	0.0E+00	0.0E+00
Thorium–228	NA	NA	1.1E–11	NA		3.7	NA	NA	0.0E+00	0.0E+00
Thorium–228+7D	NA	NA	5.5E–11	NA		0.00074	NA	NA	0.0E+00	0.0E+00
Thorium–230	NA	NA	1.3E–11	NA		5.7	NA	NA	0.0E+00	0.0E+00
Thorium–232	NA	NA	1.2E–11	NA		6.4	NA	NA	0.0E+00	0.0E+00
Thorium–232+10D [2]	NA	NA	1.7E–10	NA		0.00049	NA	NA	0.0E+00	0.0E+00
Thorium–234	NA	NA	4.0E–12	NA		1.1	NA	NA	0.0E+00	0.0E+00
Uranium–233	NA	NA	1.6E–11	NA		4.7	NA	NA	0.0E+00	0.0E+00
Uranium–234	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–235	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–235+1D	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–236	NA	NA	1.5E–11	NA		5.1	NA	NA	0.0E+00	0.0E+00
Uranium–238	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–238+2D	NA	NA	2.6E–11	NA		0.11	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	C	3.0E-02	2.6E-02			2,457	NA	NA	0.0E+00	0.0E+00
1,1,1-Trichloroethane	D	2.9E-01	NA	38/385	9400	NA	3.3E+04	NA	1.2E-03	0.0E+00
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01	2/350	190	319	NA	3.0E+01	0.0E+00	5.6E-08
1,1,2-Trichloroethane	C	4.0E-03	5.7E-02	1/385	14	1,121	3.5E+03	[illegible]E-01	1.3E-04	1.2E-[illegible]
1,1-Dichloroethane	C	1.0E-01	NA	7/351	22	NA	2.2E+02	NA	8.2E-06	0.0E+[illegible]
1,1-Dichloroethene	C	9.0E-03	6.0E-01	5/370	39	108	4.3E+03	[illegible]+01	1.6E-04	3.4E-08
1,2,3-Trichloropropane	B2	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
1,2-Dibromo-3-chloropropane	B2	5.7E-05	1.4E+00			46	NA	NA	0.0E+00	0.0E+00
1,2-Dibromoethane	B2	5.7E-05	8.5E+01			0.75	NA	NA	0.0E+00	0.0E+00
1,2-Dichloroethane	B2	NA	9.1E-02	1/370	2	702	NA	[illegible]-01	0.0E+00	2.7E-10
1,2-Dichloroethene (total)	D	1.0E-02	NA	9/351	340	273,750	3.4E+04	NA	1.3E-03	0.0E+00
cis-1,2-Dichloroethene	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
1,4-Dioxane	B2	NA	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
2-Butanone	D	6.0E-01	NA	10/288	110	16,425,000	1.8E+02	NA	6.6E-06	0.0E+00
2-Chloro-1,3-butadiene	NA	2.0E-03	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloroethylvinyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Hexanone	NA	4.0E-02	NA	3/284	47	1,095,000	1.2E+[illegible]	NA	4.4E-05	0.0E+00
2-Picoline	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Chloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methyl-2-pentanone	NA	5.0E-02	NA	15/285	160	1,368,750	3.2E+[illegible]	NA	1.2E-04	0.0E+00
Acetone	D	1.0E-01	NA	40/383	450	2,737,500	4.5E+[illegible]	NA	1.7E-04	0.0E+00
Acetonitrile	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Acrolein	C	5.7E-06	NA			NA	NA	NA	0.0E+00	0.0E+00
Acrylonitrile	B1	5.7E-04	5.4E-01			118	NA	NA	0.0E+00	0.0E+00
Benzene	A	NA	2.9E-02	4/388	5	2,203	NA	1.5E-01	0.0E+00	2.1E-10
Bromochloromethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bromodichloromethane	B2	2.0E-02	6.2E-02			1,030	NA	NA	0.0E+00	0.0E+00
Bromoform	B2	2.0E-02	7.9E-03			8,085	NA	NA	0.0E+00	0.0E+00
Bromomethane	D	1.4E-03	NA	1/351	720	38,325	5.1E+05	NA	1.9E-02	0.0E+00
Carbon tetrachloride	B2	7.0E-04	1.3E-01	2/385	1200	491	1.7E+06	1.6E+02	6.4E-02	2.3E-07
Carbon disulfide	NA	1.0E-01	NA	17/379	790	2,737,500	7.9E+03	NA	2.9E-04	0.0E+00
Chlorobenzene	D	2.0E-02	NA	5/385	10	547,500	5.0E+02	NA	1.9E-05	0.0E+00
Chloroethane	NA	2.9E+00	NA			NA	NA	NA	0.0E+00	0.0E+00
Chloroform	B2	1.0E-02	6.1E-03	9/351	280	10,471	2.8E+04	1.7E+00	1.0E-03	2.5E-09
Chloromethane	NA	NA	1.3E-02			4,913	NA	NA	0.0E+00	0.0E+00
Cumene	NA	4.0E-02	NA			1,095,000	NA	NA	0.0E+00	0.0E+00
Dibromochloromethane	C	2.0E-02	8.4E-02			760	NA	NA	0.0E+00	0.0E+00
Dibromomethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,2-Dichloropropane	B2	1.1E-03	6.8E-02			NA	NA	NA	0.0E+00	0.0E+00
Dichlorodifluoromethane	D	2.0E-01	NA			5,475,000	NA	NA	0.0E+00	0.0E+00
Ethyl cyanide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethyl methacrylate	NA	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
Methyl methacrylate	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
Ethylbenzene	D	1.0E-01	NA	8/386	660	2,737,500	6.6E+03	NA	2.4E-04	0.0E+00
Iodomethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isobutyl alcohol	NA	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+[illegible]
Methacrylonitrile	NA	2.0E-04	NA			NA	NA	NA	0.0E+00	0.0E+[illegible]
Methylene chloride	B2	6.0E-02	7.5E-03	59/388	5500	8,517	9.2E+04	4.1E+01	3.4E-03	6.1E-08
Pentachloroethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pyridine	NA	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00
Styrene	C	2.0E-01	3.0E-02	2/349	28	2,129	1.4E+02	8.4E-01	5.2E-06	1.2E-09
Tetrachloroethene [3]	NA	1.0E-02	NA	37/381	48000	273,750	4.8E+06	NA	1.8E-01	0.0E+00
Toluene	D	2.0E-01	NA	74/388	200	5,475,000	1.0E+03	NA	3.7E-05	0.0E+00
Total Xylenes	D	2.0E+00	NA	11/370	2000	54,750,000	1.0E+03	NA	3.7E-05	0.0E+00
Trichloroethene	NA	6.0E-03	1.1E-02	46/385	89000	5,807	1.5E+07	9.8E+02	5.5E-01	1.4E-06
Trichlorofluoromethane	D	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Vinyl acetate	NA	1.0E+00	NA			27,375,000	NA	NA	0.0E+00	0.0E+00
Vinyl chloride	A	NA	1.9E+00			34	NA	NA	0.0E+00	0.0E+00
cis-1,3-Dichloropropene	NA	NA	1.3E-01			491	NA	NA	0.0E+00	0.0E+00
trans-1,2-Dichloroethene	D	2.0E-02	NA	2/19	3	547,500	1.5E+02	NA	5.6E-06	0.0E+00
trans-1,3-Dichloropropene	B2	NA	1.8E-01			355	NA	NA	0.0E+00	0.0E+00
trans-1,4-Dichloro-2-butene	B2	NA	9.3E+00			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
1,2,4-Trichlorobenzene	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
1,2-Dichlorobenzene	D	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
1,3,5-Trinitrobenzene	NA	5.0E-05	NA			1,369	NA	NA	0.0E+00	0.0E+00
1,3-Dichlorobenzene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,3-Dinitrobenzene	D	1.0E-04	NA			2,738	NA	NA	0.0E+00	0.0E+00
1,4-Dichlorobenzene	B2	2.3E-01	2.4E-02			2,661	NA	NA	0.0E+00	0.0E+00
1,4-Naphthaquinone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Hexadecyne	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,3,4,6-Tetrachlorophenol	NA	3.0E-02	NA			821,250	NA	NA	0.0E+00	0.0E+00
2,4,5-Trichlorophenol	NA	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
2,4,6-Trichlorophenol	B2	NA	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
2,4-Dichlorophenol	D	3.0E-03	NA	1/342	100	82,125	3.3E+04	NA	1.2E-03	0.0E+00
2,4-Dimethylphenol	NA	2.0E-02	NA	3/351	100	547,500	5.0E+03	NA	1.9E-04	0.0E+00
2,4-Dinitrophenol	NA	2.0E-03	NA			54,750	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrotoluene	B2	2.0E-03	6.8E-01	1/366	53	94	2.7E+04	3.6E+01	9.8E-04	5.3E-08
2,6-Dichlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,6-Dinitrotoluene	B2	1.0E-03	6.8E-01	1/342	11	94	1.1E+04	7.5E+00	4.1E-04	1.1E-08
2-Acetylaminofluorene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Benzyl-4-chlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloronaphthalene	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
2-Chlorophenol	D	5.0E-03	NA	1/334	48	136,875	9.6E+03	NA	3.6E-04	0.0E+00
2-Methylnaphthalene [4]	NA	NA	NA	29/342	1700	1,095,000	NA	NA	0.0E+00	0.0E+00
2-Methylphenol	C	5.0E-02	NA	1/342	45	1,368,750	9.0E+02	NA	3.3E-05	0.0E+00
2-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitroaniline	NA	6.0E-05	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3,3'-Dichlorobenzidine	B2	NA	4.5E-01	1/341	190	142	NA	6.6E+01	0.0E+00	1.3E-07
3,3'-Dimethylbenzidine	B2	NA	9.2E+00			6.9	NA	NA	0.0E+00	0.0E+00
3-Methylcholanthrene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Methylphenol	C	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
3-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4,6-Dinitro-2-methylphenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Aminobiphenyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Bromophenyl phenyl ether	D	5.8E-02	NA			1,587,750	NA	NA	0.0E+00	0.0E+00
4-Chloro-3-methylphenol [5]	NA	NA	NA	1/334	48	1,368,750	NA	NA	0.0E+00	0.0E+00
4-Chloroaniline	NA	4.0E-03	NA			109,500	NA	NA	0.0E+00	0.0E+00
4-Chlorophenyl phenyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methylphenol	C	5.0E-02	NA	4/343	190	136,875	3.8E+03	NA	1.4E-04	0.0E+00
4-Nitroaniline	NA	3.0E-03	NA	1/321	330	82,125	1.1E+05	NA	4.1E-03	0.0E+00
4-Nitrophenol	D	6.2E-02	NA			1,697,250	NA	NA	0.0E+00	0.0E+00
4-Nitroquinoline-1-oxide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
5-Nitro-o-toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
7,12-Dimethylbenz(a)anthracene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acenaphthene	NA	6.0E-02	NA	21/342	4800	1,642,500	8.0E+04	NA	3.0E-03	0.0E+00
Acenaphthylene	D	NA	NA	13/342	3100	NA	NA	NA	0.0E+00	0.0E+00
Acetophenone	D	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
Aniline	B2	2.9E-04	5.6E+00			11,208	NA	NA	0.0E+00	0.0E+00
Anthracene	D	3.0E-01	NA	38/346	11000	8,212,500	3.7E+04	NA	1.4E-03	0.0E+00
Aramite	B2	5.0E-02	2.5E-02			2,555	NA	NA	0.0E+00	0.0E+00
Benzo(a)anthracene	B2	NA	1.1E+00	82/346	61000	58	NA	6.7E+04	0.0E+00	9.9E-05
Benzo(a)pyrene	B2	NA	7.3E+00	66/345	69000	8.8	NA	5.0E+05	0.0E+00	7.4E-04
Benzo(b)fluoranthene	B2	NA	9.0E-01	78/346	39000	71	NA	3.5E+04	0.0E+00	5.2E-05
Benzo(g,h,i)perylene	D	NA	NA	48/346	48000	NA	NA	NA	0.0E+00	0.0E+00
Benzo(k)fluoranthene	D	NA	3.8E-01	74/346	69000	168	NA	2.6E+04	0.0E+00	3.9E-05
Benzoic Acid	NA	4.0E+00	NA	9/287	270	109,500,000	6.8E+01	NA	2.5E-06	0.0E+00
Benzyl alcohol	NA	3.0E-01	NA	2/295	250	8,212,500	8.3E+02	NA	3.1E-05	0.0E+00
Butyl benzyl phthalate	C	2.0E-01	NA	5/344	750	5,475,000	3.8E+03	NA	1.4E-04	0.0E+00
Carbazole	B2	NA	2.0E-02	11/161	570	3,194	NA	1.1E+01	0.0E+00	1.7E-08
Chlorobenzilate	NA	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Chrysene	B2	NA	3.2E-02	82/345	18000	1,998	NA	5.8E+02	0.0E+00	8.5E-07
Di-n-butylphthalate	D	1.0E-01	NA	41/346	6100	2,737,500	6.1E+04	NA	2.3E-03	0.0E+00
Di-n-octylphthalate	NA	2.0E-02	NA	5/344	630	547,500	3.2E+04	NA	1.2E-03	0.0E+00
Diallate	B2	NA	8.1E-02			1,047	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (mg/kg/day)$^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds (Con't.)										
Dibenzo(a,h)anthracene	B2	NA	8.1E+00	27/348	23000	7.9	NA	1.9E+05	0.0E+00	2.7E−04
Dibenzofuran	D	4.0E−03	NA	24/342	3400	109,500	8.5E+05	NA	3.2E−02	0.0E+00
Diethyl phthalate	D	8.0E−01	NA	3/342	52	21,900,000	6.5E+01	NA	2.4E−08	0.0E+00
Dimethoate	NA	2.0E−04	NA			5,475	NA	NA	0.0E+00	0.0E+0
Dimethyl phthalate	D	1.0E+01	NA			273,750,000	NA	NA	0.0E+00	0.0E+0
Diphenylamine	D	2.5E−02	NA			684,375	NA	NA	0.0E+00	0.0E+00
Ethyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Famphur	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Fluoranthene	D	4.0E−02	NA	114/345	33000	1,095,000	8.3E+05	NA	3.1E−02	0.0E+00
Fluorene	D	4.0E−02	NA	23/342	5700	1,095,000	1.4E+05	NA	5.3E−03	0.0E+00
Hexachlorobenzene	B2	8.0E−04	1.6E+00			40	NA	NA	0.0E+00	0.0E+00
Hexachlorobutadiene	C	NA	7.8E−02	1/362	430	619	NA	3.4E+01	0.0E+00	4.9E−08
Hexachlorocyclpentadiene	D	7.0E−03	NA			191,625	NA	NA	0.0E+00	0.0E+00
Hexachloroethane	C	1.0E−03	1.4E−02			4,563	NA	NA	0.0E+00	0.0E+00
Hexachlorophene	NA	3.0E−04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Hexachloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Indeno(1,2,3−cd)pyrene	B2	NA	2.0E+00	50/348	49000	32	NA	9.8E+04	0.0E+00	1.4E−04
Isodrin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isophorone	C	2.0E−01	9.5E−04	1/342	830	67,237	4.2E+03	7.9E−01	1.5E−04	1.2E−09
Isosafrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Kepone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methapyrilene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N−Nitroso−di−n−propylamine	B2	NA	7.0E+00	1/338	39	9.1	NA	2.7E+02	0.0E+00	4.0E−07
N−Nitroso−di−n−butylamine	B2	NA	5.4E+00			12	NA	NA	0.0E+00	0.0E+00
N−Nitrosodiethylamine	B2	NA	1.5E+02			0.43	NA	NA	0.0E+00	0.0E+00
N−Nitrosodimethylamine	B2	NA	5.1E+01			1.3	NA	NA	0.0E+00	0.0E+00
N−Nitrosodiphenylamine	B2	NA	4.9E−03	4/342	1300	13,038	NA	8.4E+00	0.0E+00	9.4E−09
N−Nitrosomethylethylamine	B2	NA	2.2E+01			2.9	NA	NA	0.0E+00	0.0E+00
N−Nitrosomorpholine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N−Nitrosopiperidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N−Nitrosopyrrolidine	B2	NA	2.1E+00			30	NA	NA	0.0E+00	0.0E+00
Naphthalene	D	4.0E−02	NA	27/342	1800	1,095,000	4.5E+04	NA	1.7E−03	0.0E+00
Nitrobenzene	D	5.0E−04	NA			13,688	NA	NA	0.0E+00	0.0E+00
o,o,o−Triethylphosphorothioate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pentachlorobenzene	D	8.0E−04	NA			21,900	NA	NA	0.0E+00	0.0E+00
Pentachloronitrobenzene	C	3.0E−03	2.6E−01			246	NA	NA	0.0E+00	0.0E+00
Pentachlorophenol	B2	3.0E−02	1.2E−01			532	NA	NA	0.0E+00	0.0E+00
Phenacetin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenanthrene	D	NA	NA	92/345	22000	NA	NA	NA	0.0E+00	0.0E+00
Phenol	D	6.0E−01	NA	9/335	730	16,425,000	1.2E+03	NA	4.5E−05	0.0E+00
Phorate	NA	2.0E−04	NA			5,475	NA	NA	0.0E+00	0.0E+00
Pronamide	NA	7.5E−02	NA			2,053,125	NA	NA	0.0E+00	0.0E+00
Pyrene	D	3.0E−02	NA	115/345	22000	821,250	7.3E+05	NA	2.7E−02	0.0E+00
Safrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Thionazin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+0
Tributyl phosphate [3]	NA	5.0E−03	NA	8/39	1200	136,875	2.4E+05	NA	8.9E−03	0.0E+0
a,a−Dimethylphenethylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2−Chloroethoxy)methane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2−Chloroethyl)ether	NA	NA	1.1E+00			NA	NA	NA	0.0E+00	0.0E+00
Bis(2−Chloroisopropyl)ether	C	NA	7.0E−02	2/328	48	913	NA	3.4E+00	0.0E+00	4.9E−09
Bis(2−ethylhexyl)phthalate	B2	2.0E−02	1.4E−02	99/341	11000	4,563	5.5E+05	1.5E+02	2.0E−02	2.3E−07
o−Toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p−Dimethylaminoazobenzene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p−Phenylenediamine	NA	1.9E−01	NA			5,201,250	NA	NA	0.0E+00	0.0E+00
Azinphosmethyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RiNC	RiC	ERiNC	ERiC
Pesticides/PCBs										
4-4'-DDD	B2	NA	2.4E-01			266	NA	NA	0.0E+00	0.0E+00
4-4'-DDE	B2	NA	3.4E-01	3/333	38	188	NA	1.3E+01	0.0E+00	1.9E-08
4-4'-DDT	B2	5.0E-04	3.4E-01	6/334	19	188	3.8E+04	6.5E+00	1.4E-03	9.5E-09
Aldrin	B2	3.0E-05	1.7E+01	1/333	1.6	3.8	5.3E+04	2.7E+01	2.0E-03	4.0E-08
Arochlor 1016	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1221	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1232	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1242	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1248	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1254	B2	NA	7.7E+00	81/337	14000	8.3	NA	1.1E+05	0.0E+00	1.6E-04
Arochlor 1260	B2	NA	7.7E+00	17/338	2800	8.3	NA	2.2E+04	0.0E+00	3.2E-05
Chlordane	B2	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Demeton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Diazinon	NA	9.0E-04	NA			24,638	NA	NA	0.0E+00	0.0E+00
Dieldrin	B2	5.0E-05	1.6E+01	7/333	20	4.0	4.0E+05	3.2E+02	1.5E-02	4.7E-07
Disulfoton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Endosulfan II [6]	NA	NA	NA	1/333	2	164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan sulfate [7]	NA	NA	NA	1/333	0.73	164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan I [8]	NA	NA	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endrin	D	3.0E-04	NA	5/351	19	8,213	6.3E+04	NA	2.4E-03	0.0E+00
Endrin aldehyde	NA	NA	NA	2/179	15	8,213	NA	NA	0.0E+00	0.0E+00
Endrin ketone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethion	NA	5.0E-04	NA			13,688	NA	NA	0.0E+00	0.0E+00
Heptachlor	B2	5.0E-04	4.5E+00			14	NA	NA	0.0E+00	0.0E+00
Heptachlor epoxide	B2	1.3E-05	9.1E+00	2/351	2.8	7.0	2.2E+05	2.5E+01	8.0E-03	3.8E-08
Malathion	D	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Methoxychlor	D	5.0E-03	NA	3/351	3.5	136,875	7.0E+02	NA	2.6E-05	0.0E+00
Ethyl parathion	C	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl parathion	D	2.5E-04	NA			6,844	NA	NA	0.0E+00	0.0E+00
Toxaphene	B2	NA	1.1E+00			58	NA	NA	0.0E+00	0.0E+00
Alpha-BHC	B2	NA	6.3E+00			10	NA	NA	0.0E+00	0.0E+00
Alpha-Chlordane	NA	6.0E-05	1.3E+00	5/333	9.7	49	1.6E+05	1.3E+01	6.0E-03	1.9E-08
Beta-BHC	C	NA	1.8E+00	3/333	220	35	NA	4.0E+02	0.0E+00	5.8E-07
Delta-BHC	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Gamma-BHC (Lindane)	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Gamma-Chlordane	NA	6.0E-05	1.3E+00	1/351	7.2	49	1.2E+05	9.4E+00	4.5E-03	1.4E-08
Dioxins/Furans [9]										
Dioxins										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzo-p-dioxin	B2	NA	1.5E+05	6/22	2900	0.43	NA	4.4E+08	0.0E+00	6.4E-01
Furans										
2,3,7,8-Tetrachlorodibenzofuran	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
1,2,3,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.0085	NA	NA	0.0E+00	0.0E+00
2,3,4,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Pentachlorodibenzofurans	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Hexachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzofurans	B2	NA	1.5E+05	1/20	320	0.043	NA	4.8E+07	0.0E+00	7.1E-02
Octachlorodibenzofuran	B2	NA	1.5E+05	2/20	1300	0.43	NA	2.0E+08	0.0E+00	2.8E-01
Herbicides										
2,4,5-T	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
2,4,5-TP (Silvex)	D	8.0E-03	NA			219,000	NA	NA	0.0E+00	0.0E+00
2,4-D	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
Dinoseb	D	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Inorganics										
Aluminum	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Antimony	D	4.0E−04	NA	NA		10,950	NA	NA	0.0E+00	0.0E+00
Arsenic	A	3.0E−04	1.8E+00	NA		37	NA	NA	0.0E+00	0.0E+00
Barium	D	7.0E−02	NA	NA		1,916,250	NA	NA	0.0E+00	0.0E+00
Beryllium	B2	5.0E−03	4.3E+00	NA		15	NA	NA	0.0E+00	0.0E+00
Boron	D	9.0E−02	NA	NA		2,483,750	NA	NA	0.0E+00	0.0E+00
Cadmium	B1	1.0E−04	6.3E+00	NA		13,688	NA	NA	0.0E+00	0.0E+00
Calcium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Chromium, hexavalent	A	5.0E−03	4.2E+01	NA		138,875	NA	NA	0.0E+00	0.0E+00
Chromium, trivalent	NA	1.0E+00	NA	NA		27,375,000	NA	NA	0.0E+00	0.0E+00
Cobalt	NA	6.0E−02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Copper	D	3.7E−02	NA	NA		1,018,415	NA	NA	0.0E+00	0.0E+00
Cyanide	D	2.0E−02	NA	NA		547,500	NA	NA	0.0E+00	0.0E+00
Iron	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Lead	B2	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Magnesium [3]	NA	9.7E+00	NA	NA		265,537,500	NA	NA	0.0E+00	0.0E+00
Manganese	D	1.4E−01	NA	NA		138,875	NA	NA	0.0E+00	0.0E+00
Mercury	D	3.0E−04	NA	NA		8,213	NA	NA	0.0E+00	0.0E+00
Molybdenum	D	5.0E−03	NA	NA		138,875	NA	NA	0.0E+00	0.0E+00
Nickel	D	2.0E−02	8.4E−01	NA		547,500	NA	NA	0.0E+00	0.0E+00
Osmium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Selenium	D	5.0E−03	NA	NA		138,875	NA	NA	0.0E+00	0.0E+00
Silver	D	5.0E−03	NA	NA		138,875	NA	NA	0.0E+00	0.0E+00
Thallium	NA	7.0E−05	NA	NA		1,916	NA	NA	0.0E+00	0.0E+00
Tin	NA	6.0E−01	NA	NA		16,425,000	NA	NA	0.0E+00	0.0E+00
Uranium	NA	3.0E−03	NA	NA		82,125	NA	NA	0.0E+00	0.0E+00
Vanadium	D	7.0E−03	NA	NA		191,625	NA	NA	0.0E+00	0.0E+00
Zinc	D	3.0E−01	NA	NA		8,212,500	NA	NA	0.0E+00	0.0E+00
Conventional Parameters										
Ammonia	NA	2.9E−02	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Fluoride	NA	6.0E−02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Nitrate	NA	1.6E+00	NA	NA	435	43,800,000	2.7E+02	NA	1.0E−05	0.0E+00
Nitrite	NA	1.0E−01	NA	NA		2,737,500	NA	NA	0.0E+00	0.0E+00
Sulfate	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Sum of All RI Values							2.7E+07	6.8E+08		

NOTES:

[1] See Table A.4−3 for literature sources from which the toxicity criteria were obtained, unless otherwise noted. Oral cancer slope factors and reference doses were used in the toxicity screen. Inhalation cancer slope factors and reference doses were used in the absence of oral data.

[2] Used for the evaluation of future exposure scenarios involving parent isotope in equilibrium with daughters.

[3] Toxicity criteria acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.

[4] Screening level for naphthalene used as a surrogate.

[5] Screening level for 2−methylphenol used as a surrogate.

[6] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk−Based Concentrations) used for endosulfan I and II.

[7] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.

[8] Screening level for endrin used as a surrogate.

[9] *Dioxin/furan concentration presented is the 2378−TCDD toxic equivalent concentration.*

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TABLE A.III – 5
ORGANIC CONTAMINANT TOXICITY SCREEN
SITE: FERNALD OPERABLE UNIT 5
DATE: 06–18–94
MEDIA: SUBSURFACE SOILS
ENTERED: PBM/JKL
CHECKED: JKL
FILE: OU5SSCOC

Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (Risk/pCi)	Overall Frequency of Detection	CMAX (pCi/g)	Screening Level (pCi/g)	RINC	RIC	ERINC	ERIC
Radionuclides										
Actinium–227	NA	NA	2.8E–10	NA		0.28	NA	NA	0.0E+00	0.0E+00
Actinium–227+7D	NA	NA	3.5E–10	NA		0.0048	NA	NA	0.0E+00	0.0E+00
Cesium–137	NA	NA	2.8E–11	NA		2.8	NA	NA	0.0E+00	0.0E+00
Cesium–137+1D	NA	NA	2.8E–11	NA		0.0021	NA	NA	0.0E+00	0.0E+00
Lead–210	NA	NA	5.1E–10	NA		0.15	NA	NA	0.0E+00	0.0E+00
Lead–210+2D	NA	NA	6.6E–10	NA		0.12	NA	NA	0.0E+00	0.0E+00
Neptunium–237	NA	NA	2.2E–10	NA		0.22	NA	NA	0.0E+00	0.0E+00
Neptunium–237+1D	NA	NA	2.2E–10	NA		0.0094	NA	NA	0.0E+00	0.0E+00
Plutonium–238	NA	NA	2.2E–10	NA		0.36	NA	NA	0.0E+00	0.0E+00
Plutonium–239	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Plutonium–240	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Polonium–210	NA	NA	1.5E–10	NA		0.53	NA	NA	0.0E+00	0.0E+00
Potassium–40	NA	NA	1.1E–11	NA		0.0077	NA	NA	0.0E+00	0.0E+00
Protactinium–231	NA	NA	9.2E–11	NA		0.14	NA	NA	0.0E+00	0.0E+00
Radium–224	NA	NA	3.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00
Radium–226	NA	NA	1.2E–10	NA		0.23	NA	NA	0.0E+00	0.0E+00
Radium–226+5D	NA	NA	1.2E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–226+8D [2]	NA	NA	7.8E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–228	NA	NA	1.0E–10	NA		0.79	NA	NA	0.0E+00	0.0E+00
Radium–228+1D	NA	NA	1.0E–10	NA		0.0014	NA	NA	0.0E+00	0.0E+00
Radon–222	NA	NA	1.4E–12	NA		3.3	NA	NA	0.0E+00	0.0E+00
Radon–222+4D	NA	NA	1.7E–12	NA		0.00071	NA	NA	0.0E+00	0.0E+00
Ruthenium–106	NA	NA	9.5E–12	NA		8.4	NA	NA	0.0E+00	0.0E+00
Strontium–90	NA	NA	3.3E–11	NA		2.4	NA	NA	0.0E+00	0.0E+00
Strontium–90+1D	NA	NA	3.6E–11	NA		2.2	NA	NA	0.0E+00	0.0E+00
Technetium–99	NA	NA	1.3E–12	NA		61	NA	NA	0.0E+00	0.0E+00
Thorium–228	NA	NA	1.1E–11	NA		3.7	NA	NA	0.0E+00	0.0E+00
Thorium–228+7D	NA	NA	5.5E–11	NA		0.00074	NA	NA	0.0E+00	0.0E+00
Thorium–230	NA	NA	1.3E–11	NA		5.7	NA	NA	0.0E+00	0.0E+00
Thorium–232	NA	NA	1.2E–11	NA		6.4	NA	NA	0.0E+00	0.0E+00
Thorium–232+10D [2]	NA	NA	1.7E–10	NA		0.00049	NA	NA	0.0E+00	0.0E+00
Thorium–234	NA	NA	4.0E–12	NA		1.1	NA	NA	0.0E+00	0.0E+00
Uranium–233	NA	NA	1.6E–11	NA		4.7	NA	NA	0.0E+00	0.0E+00
Uranium–234	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–235	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–235+1D	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–236	NA	NA	1.5E–11	NA		5.1	NA	NA	0.0E+00	0.0E+00
Uranium–238	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–238+2D	NA	NA	2.8E–11	NA		0.11	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	C	3.0E-02	2.6E-02			2,457	NA	NA	0.0E+00	0.0E+00
1,1,1-Trichloroethane	D	2.9E-01	NA	49/381	6600	NA	2.3E+04	NA	3.3E-04	0.0E+00
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01	9/378	190	319	NA	3.8E+01	0.0E+00	1.7E-07
1,1,2-Trichloroethane	C	4.0E-03	5.7E-02	6/382	4	1,121	1.0E+03	2.3E-01	1.4E-05	1.0E-0[illegible]
1,1-Dichloroethane	C	1.0E-01	NA	39/378	460	NA	4.6E+03	NA	6.6E-05	0.0E+0[illegible]
1,1-Dichloroethene	C	9.0E-03	6.0E-01	25/378	460	108	5.1E+04	2.8E+02	7.3E-04	1.2E-06
1,2,3-Trichloropropane	B2	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
1,2-Dibromo-3-chloropropane	B2	5.7E-05	1.4E+00			48	NA	NA	0.0E+00	0.0E+00
1,2-Dibromoethane	B2	5.7E-05	8.5E+01			0.75	NA	NA	0.0E+00	0.0E+00
1,2-Dichloroethane	B2	NA	9.1E-02	6/377	10	702	NA	9.1E-01	0.0E+00	4.0E-09
1,2-Dichloroethene (Total)				47/378	4300					
cis-1,2-Dichloroethene	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
1,4-Dioxane	B2	NA	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
2-Butanone	D	6.0E-01	NA	27/246	200	16,425,000	3.3E+02	NA	4.8E-08	0.0E+00
2-Chloro-1,3-butadiene	NA	2.0E-03	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloroethylvinyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Hexanone	NA	4.0E-02	NA	7/299	2600	1,095,000	6.5E+04	NA	9.3E-04	0.0E+00
2-Picoline	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Chloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methyl-2-pentanone	NA	5.0E-02	NA	53/304	2600	1,368,750	5.2E+04	NA	7.4E-04	0.0E+00
Acetone	D	1.0E-01	NA	67/380	230	2,737,500	2.3E+03	NA	3.3E-05	0.0E+00
Acetonitrile	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Acrolein	C	5.7E-06	NA			NA	NA	NA	0.0E+00	0.0E+00
Acrylonitrile	B1	5.7E-04	5.4E-01			118	NA	NA	0.0E+00	0.0E+00
Benzene	A	NA	2.9E-02	3/387	1300	2,203	NA	3.8E+01	0.0E+00	1.7E-07
Bromochloromethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bromodichloromethane	B2	2.0E-02	6.2E-02	2/387	13	1,030	6.5E+02	8.1E-01	9.3E-08	3.6E-09
Bromoform	B2	2.0E-02	7.9E-03			8,085	NA	NA	0.0E+00	0.0E+00
Bromomethane	D	1.4E-03	NA			38,325	NA	NA	0.0E+00	0.0E+00
Carbon tetrachloride	B2	7.0E-04	1.3E-01	2/382	12	491	1.7E+04	1.6E+00	2.4E-04	6.9E-09
Carbon disulfide	NA	1.0E-01	NA	94/382	390	2,737,500	3.9E+03	NA	5.6E-05	0.0E+00
Chlorobenzene	D	2.0E-02	NA	2/382	2	547,500	1.0E+02	NA	1.4E-06	0.0E+00
Chloroethane	NA	2.9E+00	NA	3/378	210	NA	7.3E+01	NA	1.0E-06	0.0E+00
Chloroform	B2	1.0E-02	6.1E-03	17/378	160	10,471	1.6E+04	9.6E-01	2.3E-04	4.3E-09
Chloromethane	NA	NA	1.3E-02	1/373	12	4,913	NA	1.6E-01	0.0E+00	6.9E-10
Cumene	NA	4.0E-02	NA			1,095,000	NA	NA	0.0E+00	0.0E+00
Dibromochloromethane	C	2.0E-02	8.4E-02	1/378	1300	760	6.5E+04	1.1E+02	9.3E-04	4.8E-07
Dibromomethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,2-Dichloropropane	B2	1.1E-03	6.8E-02			NA	NA	NA	0.0E+00	0.0E+00
Dichlorodifluoromethane	D	2.0E-01	NA			5,475,000	NA	NA	0.0E+00	0.0E+00
Ethyl cyanide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethyl methacrylate	NA	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
Methyl methacrylate	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
Ethylbenzene	D	1.0E-01	NA	7/387	747	2,737,500	7.5E+03	NA	1.1E-04	0.0E+00
Iodomethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isobutyl alcohol	NA	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+0[illegible]
Methacrylonitrile	NA	2.0E-04	NA			NA	NA	NA	0.0E+00	0.0E+0[illegible]
Methylene chloride	B2	6.0E-02	7.5E-03	46/382	100	8,517	1.7E+03	7.5E-01	2.4E-05	3.3E-09
Pentachloroethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pyridine	NA	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00
Styrene	C	2.0E-01	3.0E-02	2/378	2	2,129	1.0E+01	6.0E-02	1.4E-07	2.7E-10
Tetrachloroethene [3]	NA	1.0E-02	5.2E-02	46/381	21000	1,228	2.1E+06	1.1E+03	3.0E-02	4.8E-06
Toluene	D	2.0E-01	NA	64/387	68	5,475,000	3.3E+02	NA	4.7E-06	0.0E+00
Total Xylenes	D	2.0E+00	NA	14/383	31000	54,750,000	1.6E+04	NA	2.2E-04	0.0E+00
Trichloroethene	NA	6.0E-03	1.1E-02	51/381	150000	5,807	2.5E+07	1.7E+03	3.6E-01	7.3E-03
Trichlorofluoromethane	D	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Vinyl acetate	NA	1.0E+00	NA			27,375,000	NA	NA	0.0E+00	0.0E+00
Vinyl chloride	A	NA	1.9E+00	6/378	110	34	NA	2.1E+02	0.0E+00	9.3E-07
cis-1,3-Dichloropropene	NA	NA	1.3E-01			491	NA	NA	0.0E+00	0.0E+00
trans-1,2-Dichloroethene	D	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
trans-1,3-Dichloropropene	B2	NA	1.8E-01	1/368	1300	355	NA	2.3E+02	0.0E+00	1.0E-06
trans-1,4-Dichloro-2-butene	B2	NA	9.3E+00			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
1,2,4-Trichlorobenzene	D	1.0E-02	NA	1/309	220	273,750	2.2E+04	NA	3.1E-04	0.0E+00
1,2-Dichlorobenzene	D	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
1,3,5-Trinitrobenzene	NA	5.0E-05	NA			1,369	NA	NA	0.0E+00	0.0E+00
1,3-Dichlorobenzene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,3-Dinitrobenzene	D	1.0E-04	NA			2,738	NA	NA	0.0E+00	0.0E+00
1,4-Dichlorobenzene	B2	2.3E-01	2.4E-02	1/309	210	2,681	9.1E+02	5.0E+00	1.3E-05	2.2E-08
1,4-Naphthaquinone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Hexadecyne	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,3,4,6-Tetrachlorophenol	NA	3.0E-02	NA			821,250	NA	NA	0.0E+00	0.0E+00
2,4,5-Trichlorophenol	NA	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
2,4,6-Trichlorophenol	B2	NA	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
2,4-Dichlorophenol	D	3.0E-03	NA			82,125	NA	NA	0.0E+00	0.0E+00
2,4-Dimethylphenol	NA	2.0E-02	NA	1/313	100	547,500	5.0E+03	NA	7.1E-05	0.0E+00
2,4-Dinitrophenol	NA	2.0E-03	NA			54,750	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrotoluene	B2	2.0E-03	6.8E-01	1/312	110	94	5.5E+04	7.5E+01	7.9E-04	3.3E-07
2,6-Dichlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,6-Dinitrotoluene	B2	1.0E-03	6.8E-01			94	NA	NA	0.0E+00	0.0E+00
2-Acetylaminofluorene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Benzyl-4-chlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloronaphthalene	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
2-Chlorophenol	D	5.0E-03	NA	3/309	390	136,875	7.8E+04	NA	1.1E-03	0.0E+00
2-Methylnaphthalene [4]	NA	NA	NA	6/309	200	1,095,000	NA	NA	0.0E+00	0.0E+00
2-Methylphenol	C	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
2-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitroaniline	NA	6.0E-05	NA	1/309	2400	NA	4.0E+07	NA	5.7E-01	0.0E+00
2-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3,3'-Dichlorobenzidine	B2	NA	4.5E-01			142	NA	NA	0.0E+00	0.0E+00
3,3'-Dimethylbenzidine	B2	NA	9.2E+00			6.9	NA	NA	0.0E+00	0.0E+00
3-Methylcholanthrene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Methylphenol	C	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
3-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4,6-Dinitro-2-methylphenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Aminobiphenyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Bromophenyl phenyl ether	D	5.8E-02	NA			1,587,750	NA	NA	0.0E+00	0.0E+00
4-Chloro-3-methylphenol [5]	NA	NA	NA	4/309	88	1,368,750	NA	NA	0.0E+00	0.0E+00
4-Chloroaniline	NA	4.0E-03	NA			109,500	NA	NA	0.0E+00	0.0E+00
4-Chlorophenyl phenyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methylphenol	C	5.0E-02	NA	1/309	110	136,875	2.2E+03	NA	3.1E-05	0.0E+00
4-Nitroaniline	NA	3.0E-03	NA			82,125	NA	NA	0.0E+00	0.0E+00
4-Nitrophenol	D	6.2E-02	NA	4/307	330	1,697,250	5.3E+03	NA	7.6E-05	0.0E+00
4-Nitroquinoline-1-oxide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
5-Nitro-o-toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
7,12-Dimethylbenz(a)anthracene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acenaphthene	NA	6.0E-02	NA	2/308	250	1,642,500	4.2E+03	NA	6.0E-05	0.0E+00
Acenaphthylene	D	NA	NA	3/309	2100	NA	NA	NA	0.0E+00	0.0E+00
Acetophenone	D	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
Aniline	B2	2.9E-04	5.7E-03			11,208	NA	NA	0.0E+00	0.0E+00
Anthracene	D	3.0E-01	NA	7/312	1400	8,212,500	4.7E+03	NA	6.7E-05	0.0E+00
Aramite	B2	5.0E-02	2.5E-02			2,555	NA	NA	0.0E+00	0.0E+00
Benzo(a)anthracene	B2	NA	1.1E+00	20/312	17000	58	NA	1.9E+04	0.0E+00	6.3E-05
Benzo(a)pyrene	B2	NA	7.3E+00	13/311	8800	8.8	NA	6.3E+04	0.0E+00	2.8E-04
Benzo(b)fluoranthene	B2	NA	9.0E-01	17/312	23000	71	NA	2.1E+04	0.0E+00	9.2E-05
Benzo(g,h,i)perylene	D	NA	NA	9/312	5900	NA	NA	NA	0.0E+00	0.0E+00
Benzo(k)fluoranthene	D	NA	3.8E-01	5/312	280	168	NA	1.1E+02	0.0E+00	4.7E-07
Benzoic Acid	NA	4.0E+00	NA	8/289	200	109,500,000	5.0E+01	NA	7.1E-07	0.0E+00
Benzyl alcohol	NA	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Butyl benzyl phthalate	C	2.0E-01	NA	5/311	430	5,475,000	2.2E+03	NA	3.1E-05	0.0E+00
Carbazole	B2	NA	2.0E-02			3,194	NA	NA	0.0E+00	0.0E+00
Chlorobenzilate	NA	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Chrysene	B2	NA	3.2E-02	19/312	17000	1,998	NA	5.4E+02	0.0E+00	2.4E-08
Di-n-butylphthalate	D	1.0E-01	NA	17/312	1400	2,737,500	1.4E+04	NA	2.0E-04	0.0E+00
Di-n-octylphthalate	NA	2.0E-02	NA	3/312	280	547,500	1.4E+04	NA	2.0E-04	0.0E+00
Diallate	B2	NA	6.1E-02			1,047	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RiC	ERINC	ERiC
Semivolatile Organic Compounds (Con't.)										
Dibenzo(a,h)anthracene	B2	NA	8.1E+00	6/311	1100	7.9	NA	8.9E+03	0.0E+00	4.0E-05
Dibenzofuran	D	4.0E-03	NA	3/308	120	109,500	3.0E+04	NA	4.3E-04	0.0E+00
Diethyl phthalate	D	8.0E-01	NA	7/308	250	21,900,000	3.1E+02	NA	4.5E-06	0.0E+00
Dimethoate	NA	2.0E-04	NA			5,475	NA	NA	0.0E+00	0.0E+00
Dimethyl phthalate	D	1.0E+01	NA			273,750,000	NA	NA	0.0E+00	0.0E+00
Diphenylamine	D	2.5E-02	NA			684,375	NA	NA	0.0E+00	0.0E+00
Ethyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Famphur	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Fluoranthene	D	4.0E-02	NA	32/312	34000	1,095,000	8.5E+05	NA	1.2E-02	0.0E+00
Fluorene	D	4.0E-02	NA	2/307	370	1,095,000	9.3E+03	NA	1.3E-04	0.0E+00
Hexachlorobenzene	B2	8.0E-04	1.6E+00			40	NA	NA	0.0E+00	0.0E+00
Hexachlorobutadiene	C	NA	7.8E-02	1/313	350	819	NA	2.7E+01	0.0E+00	1.2E-07
Hexachlorocyclpentadiene	D	7.0E-03	NA			191,625	NA	NA	0.0E+00	0.0E+00
Hexachloroethane	C	1.0E-03	1.4E-02			4,563	NA	NA	0.0E+00	0.0E+00
Hexachlorophene	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Hexachloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	B2	NA	2.0E+00	11/312	4800	32	NA	9.8E+03	0.0E+00	4.4E-05
Isodrin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isophorone	C	2.0E-01	9.5E-04			67,237	NA	NA	0.0E+00	0.0E+00
Isosafrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Kepone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methapyrilene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-propylamine	B2	NA	7.0E+00	1/301	190	9.1	NA	1.3E+03	0.0E+00	5.9E-08
N-Nitroso-di-n-butylamine	B2	NA	5.4E+00			12	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiethylamine	B2	NA	1.5E+02			0.43	NA	NA	0.0E+00	0.0E+00
N-Nitrosodimethylamine	B2	NA	5.1E+01	1/2	5	1.3	NA	2.6E+02	0.0E+00	1.1E-08
N-Nitrosodiphenylamine	B2	NA	4.9E-03	1/308	72	13,036	NA	3.5E-01	0.0E+00	1.6E-09
N-Nitrosomethylethylamine	B2	NA	2.2E+01			2.9	NA	NA	0.0E+00	0.0E+00
N-Nitrosomorpholine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopiperidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopyrrolidine	B2	NA	2.1E+00			30	NA	NA	0.0E+00	0.0E+00
Naphthalene	D	4.0E-02	NA	3/309	120	1,095,000	3.0E+03	NA	4.3E-05	0.0E+00
Nitrobenzene	D	5.0E-04	NA			13,688	NA	NA	0.0E+00	0.0E+00
o,o,o-Triethylphosphorothioate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pentachlorobenzene	D	8.0E-04	NA			21,900	NA	NA	0.0E+00	0.0E+00
Pentachloronitrobenzene	C	3.0E-03	2.6E-01			246	NA	NA	0.0E+00	0.0E+00
Pentachlorophenol	B2	3.0E-02	1.2E-01	4/312	260	532	8.7E+03	3.1E+01	1.2E-04	1.4E-07
Phenacetin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenanthrene	D	NA	NA	32/312	18000	NA	NA	NA	0.0E+00	0.0E+00
Phenol	D	6.0E-01	NA	8/309	710	16,425,000	1.2E+03	NA	1.7E-05	0.0E+00
Phorate	NA	2.0E-04	NA			5,475	NA	NA	0.0E+00	0.0E+00
Pronamide	NA	7.5E-02	NA			2,053,125	NA	NA	0.0E+00	0.0E+00
Pyrene	D	3.0E-02	NA	44/312	30000	821,250	1.0E+06	NA	1.4E-02	0.0E+00
Safrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Thionazin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Tributyl phosphate [3]	NA	5.0E-03	NA			136,875	NA	NA	0.0E+00	0.0E+00
a,a-Dimethylphenethylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethoxy)methane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethyl)ether	NA	NA	1.1E+00			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroisopropyl)ether	C	NA	7.0E-02			913	NA	NA	0.0E+00	0.0E+00
Bis(2-ethylhexyl)phthalate	B2	2.0E-02	1.4E-02	100/309	9100	4,563	4.6E+05	1.3E+02	6.5E-03	5.7E-07
o-Toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Dimethylaminoazobenzene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Phenylenediamine	NA	1.9E-01	NA			5,201,250	NA	NA	0.0E+00	0.0E+00
Azinphosmethyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (mg/kg/day)$^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Pesticides/PCBs										
4-4'-DDD	B2	NA	2.4E-01			266	NA	NA	0.0E+00	0.0E+00
4-4'-DDE	B2	NA	3.4E-01			188	NA	NA	0.0E+00	0.0E+00
4-4'-DDT	B2	5.0E-04	3.4E-01			188	NA	NA	0.0E+00	0.0E+00
Aldrin	B2	3.0E-05	1.7E+01			3.8	NA	NA	0.0E+00	0.0E+00
Arochlor 1016	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1221	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1232	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1242	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1248	B2	NA	7.7E+00	1/253	110	8.3	NA	8.5E+02	0.0E+00	3.8E-06
Arochlor 1254	B2	NA	7.7E+00	34/254	1700	8.3	NA	1.3E+04	0.0E+00	5.8E-05
Arochlor 1260	B2	NA	7.7E+00	5/254	2700	8.3	NA	2.1E+04	0.0E+00	9.2E-05
Chlordane	B2	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Demeton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Diazinon	NA	9.0E-04	NA			24,638	NA	NA	0.0E+00	0.0E+00
Dieldrin	B2	5.0E-05	1.6E+01			4.0	NA	NA	0.0E+00	0.0E+00
Disulfoton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Endosulfan II [6]	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan sulfate [7]	NA	NA	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan I [6]	NA	6.0E-03	NA	1/252	1.9	164,250	3.2E+02	NA	4.5E-08	0.0E+00
Endrin	D	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Endrin aldehyde	NA	NA	NA	1/104	5	8,213	NA	NA	0.0E+00	0.0E+00
Endrin ketone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethion	NA	5.0E-04	NA			13,688	NA	NA	0.0E+00	0.0E+00
Heptachlor	B2	5.0E-04	4.5E+00			14	NA	NA	0.0E+00	0.0E+00
Heptachlor epoxide	B2	1.3E-05	9.1E+00			7.0	NA	NA	0.0E+00	0.0E+00
Malathion	D	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Methoxychlor	D	5.0E-03	NA	1/252	22	136,875	4.4E+03	NA	6.3E-05	0.0E+00
Ethyl parathion	C	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl parathion	D	2.5E-04	NA			6,844	NA	NA	0.0E+00	0.0E+00
Toxaphene	B2	NA	1.1E+00			58	NA	NA	0.0E+00	0.0E+00
Alpha-BHC	B2	NA	6.3E+00	1/253	17	10	NA	1.1E+02	0.0E+00	4.8E-07
Alpha-Chlordane	NA	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Beta-BHC	C	NA	1.8E+00			35	NA	NA	0.0E+00	0.0E+00
Delta-BHC	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Gamma-BHC (Lindane)	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Gamma-Chlordane	NA	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Dioxins/Furans [9]										
Dioxins										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.43	NA	NA	0.0E+00	0.0E+00
Furans										
2,3,7,8-Tetrachlorodibenzofuran	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
1,2,3,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.0085	NA	NA	0.0E+00	0.0E+00
2,3,4,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Pentachlorodibenzofurans	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Hexachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzofurans	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzofuran	B2	NA	1.5E+05	1/8	1500	0.43	NA	2.3E+08	0.0E+00	1.0E+00
Herbicides										
2,4,5-T	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
2,4,5-TP (Silvex)	D	8.0E-03	NA			219,000	NA	NA	0.0E+00	0.0E+00
2,4-D	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
Dinoseb	D	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Inorganics										
Aluminum	NA	2.9E+00	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Antimony	D	4.0E−04	NA	NA		10,950	NA	NA	0.0E+00	0.0E+00
Arsenic	A	3.0E−04	1.8E+00	NA		37	NA	NA	0.0E+00	0.0E+00
Barium	D	7.0E−02	NA	NA		1,916,250	NA	NA	0.0E+00	0.0E+00
Beryllium	B2	5.0E−03	4.3E+00	NA		15	NA	NA	0.0E+00	0.0E+00
Boron	D	9.0E−02	NA	NA		2,463,750	NA	NA	0.0E+00	0.0E+00
Cadmium	B1	5.0E−04	6.1E+00	NA		13,688	NA	NA	0.0E+00	0.0E+00
Calcium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Chromium, hexavalent	A	5.0E−03	4.2E+01	NA		136,875	NA	NA	0.0E+00	0.0E+00
Chromium, trivalent	NA	1.0E+00	NA	NA		27,375,000	NA	NA	0.0E+00	0.0E+00
Cobalt	NA	6.0E−02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Copper	D	3.7E−02	NA	NA		1,018,415	NA	NA	0.0E+00	0.0E+00
Cyanide	D	2.0E−02	NA	NA		547,500	NA	NA	0.0E+00	0.0E+00
Iron	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Lead	B2	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Magnesium [3]	NA	9.7E+00	NA	NA		265,537,500	NA	NA	0.0E+00	0.0E+00
Manganese	D	5.0E−03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Mercury	D	3.0E−04	NA	NA		8,213	NA	NA	0.0E+00	0.0E+00
Molybdenum	D	5.0E−03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Nickel	D	2.0E−02	8.4E−01	NA		547,500	NA	NA	0.0E+00	0.0E+00
Osmium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Selenium	D	5.0E−03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Silver	D	5.0E−03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Thallium	NA	7.0E−05	NA	NA		1,918	NA	NA	0.0E+00	0.0E+00
Tin	NA	6.0E−01	NA	NA		16,425,000	NA	NA	0.0E+00	0.0E+00
Uranium	NA	3.0E−03	NA	NA		82,125	NA	NA	0.0E+00	0.0E+00
Vanadium	D	7.0E−03	NA	NA		191,625	NA	NA	0.0E+00	0.0E+00
Zinc	D	3.0E−01	NA	NA		8,212,500	NA	NA	0.0E+00	0.0E+00
Conventional Parameters										
Ammonia	NA	2.9E−02	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Fluoride	NA	6.0E−02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Nitrate	NA	1.6E+00	NA	NA		43,800,000	NA	NA	0.0E+00	0.0E+00
Nitrite	NA	1.0E−01	NA	NA		2,737,500	NA	NA	0.0E+00	0.0E+00
Sulfate	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Sum of All RI Values							7.0E+07	2.3E+08		

NOTES:

[1] See Table A.4−3 for literature sources from which the toxicity criteria were obtained, unless otherwise noted. Oral cancer slope factors and reference doses were used in the toxicity screen. Inhalation cancer slope factors and reference doses were used in the absence of oral data.
[2] Used for the evaluation of future exposure scenarios involving parent isotope in equilibrium with daughters.
[3] Toxicity criteria acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.
[4] Screening level for naphthalene used as a surrogate.
[5] Screening level for 2−methylphenol used as a surrogate.
[6] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk−Based Concentrations) used for endosulfan I and II.
[7] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[8] Screening level for endrin used as a surrogate.
[9] Dioxin/furan concentration presented is the 2378−TCDD toxic equivalent concentration.

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TABLE A.III – 6
ORGANIC CONTAMINANT TOXICITY SCREEN
SITE: FERNALD OPERABLE UNIT 5
DATE: 06–16–94
MEDIA: GROUNDWATER
ENTERED: PBM/JKL
CHECKED: JKL
FILE: OU5GWCOC

Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (Risk/pCi)	Overall Frequency of Detection	Overall CMAX [2] (pCi/L)	Screening Level (pCi/L)	RINC	RIC	ERINC	ERIC
Radionuclides										
Actinium–227	NA	NA	2.8E–10	NA	NA	0.017	NA	NA	0.0E+00	0.0E+00
Actinium–227+7D	NA	NA	3.5E–10	NA	NA	0.014	NA	NA	0.0E+00	0.0E+00
Cesium–137	NA	NA	2.8E–11	NA	NA	0.17	NA	NA	0.0E+00	0.0E+00
Cesium–137+1D	NA	NA	2.8E–11	NA	NA	0.17	NA	NA	0.0E+00	0.0E+00
Lead–210	NA	NA	5.1E–10	NA	NA	0.0093	NA	NA	0.0E+00	0.0E+00
Lead–210+2D	NA	NA	6.6E–10	NA	NA	0.0072	NA	NA	0.0E+00	0.0E+00
Neptunium–237	NA	NA	2.2E–10	NA	NA	0.022	NA	NA	0.0E+00	0.0E+00
Neptunium–237+1D	NA	NA	2.2E–10	NA	NA	0.022	NA	NA	0.0E+00	0.0E+00
Plutonium–238	NA	NA	2.2E–10	NA	NA	0.022	NA	NA	0.0E+00	0.0E+00
Plutonium–239	NA	NA	2.3E–10	NA	NA	0.021	NA	NA	0.0E+00	0.0E+00
Plutonium–240	NA	NA	2.3E–10	NA	NA	0.021	NA	NA	0.0E+00	0.0E+00
Polonium–210	NA	NA	1.5E–10	NA	NA	0.032	NA	NA	0.0E+00	0.0E+00
Potassium–40	NA	NA	1.1E–11	NA	NA	0.43	NA	NA	0.0E+00	0.0E+00
Protactinium–231	NA	NA	9.2E–11	NA	NA	0.052	NA	NA	0.0E+00	0.0E+00
Radium–224	NA	NA	3.8E–11	NA	NA	0.13	NA	NA	0.0E+00	0.0E+00
Radium–226	NA	NA	1.2E–10	NA	NA	0.040	NA	NA	0.0E+00	0.0E+00
Radium–226+5D	NA	NA	1.2E–10	NA	NA	0.032	NA	NA	0.0E+00	0.0E+00
Radium–228+8D [3]	NA	NA	7.8E–10	NA	NA	0.0059	NA	NA	0.0E+00	0.0E+00
Radium–228	NA	NA	1.0E–10	NA	NA	0.048	NA	NA	0.0E+00	0.0E+00
Radium–228+1D	NA	NA	1.0E–10	NA	NA	0.048	NA	NA	0.0E+00	0.0E+00
Radon–222	NA	NA	1.4E–12	NA	NA	1.2	NA	NA	0.0E+00	0.0E+00
Radon–222+4D	NA	NA	1.7E–12	NA	NA	0.18	NA	NA	0.0E+00	0.0E+00
Ruthenium–106	NA	NA	9.5E–12	NA	NA	0.50	NA	NA	0.0E+00	0.0E+00
Strontium–90	NA	NA	3.3E–11	NA	NA	0.14	NA	NA	0.0E+00	0.0E+00
Strontium–90+1D	NA	NA	3.6E–11	NA	NA	0.13	NA	NA	0.0E+00	0.0E+00
Technetium–99	NA	NA	1.3E–12	NA	NA	3.7	NA	NA	0.0E+00	0.0E+00
Thorium–228	NA	NA	1.1E–11	NA	NA	0.43	NA	NA	0.0E+00	0.0E+00
Thorium–228+7D	NA	NA	5.5E–11	NA	NA	0.087	NA	NA	0.0E+00	0.0E+00
Thorium–230	NA	NA	1.3E–11	NA	NA	0.37	NA	NA	0.0E+00	0.0E+00
Thorium–232	NA	NA	1.2E–11	NA	NA	0.40	NA	NA	0.0E+00	0.0E+00
Thorium–232+10D [3]	NA	NA	1.7E–10	NA	NA	0.028	NA	NA	0.0E+00	0.0E+00
Thorium–234	NA	NA	4.0E–12	NA	NA	1.2	NA	NA	0.0E+00	0.0E+00
Uranium–233	NA	NA	1.6E–11	NA	NA	0.30	NA	NA	0.0E+00	0.0E+00
Uranium–234	NA	NA	1.6E–11	NA	NA	0.30	NA	NA	0.0E+00	0.0E+00
Uranium–235	NA	NA	1.6E–11	NA	NA	0.30	NA	NA	0.0E+00	0.0E+00
Uranium–235+1D	NA	NA	1.6E–11	NA	NA	0.30	NA	NA	0.0E+00	0.0E+00
Uranium–236	NA	NA	1.5E–11	NA	NA	0.32	NA	NA	0.0E+00	0.0E+00
Uranium–238	NA	NA	1.6E–11	NA	NA	0.30	NA	NA	0.0E+00	0.0E+00
Uranium–238+2D	NA	NA	2.8E–11	NA	NA	0.17	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	Overall CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	C	3.0E-02	2.6E-02			0.069	NA	NA	0.0E+00	0.0E+00
1,1,1-Trichloroethane	D	2.9E-01	NA	122/1597	840000	151	2.9E+06	NA	2.4E-01	0.0E+00
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01	6/1588	6	0.0090	NA	1.2E+00	0.0E+00	1.4E-07
1,1,2-Trichloroethane	C	4.0E-03	5.7E-02	4/1589	2	0.032	5.0E+02	1.1E-01	4.1E-05	1.4E-06
1,1-Dichloroethane	C	1.0E-01	NA	142/1742	500000	97	5.0E+06	NA	4.1E-01	0.0E+00
1,1-Dichloroethene	C	9.0E-03	6.0E-01	68/1604	12000	0.0067	1.3E+06	7.2E+03	1.1E-01	8.7E-04
1,2,3-Trichloropropane	B2	6.0E-03	NA			22	NA	NA	0.0E+00	0.0E+00
1,2-Dibromo-3-chloropropane	B2	5.7E-05	1.4E+00			0.0061	NA	NA	0.0E+00	0.0E+00
1,2-Dibromoethane	B2	5.7E-05	8.5E+01			0.00010	NA	NA	0.0E+00	0.0E+00
1,2-Dichloroethane	B2	NA	9.1E-02	35/1675	1100	0.020	NA	1.0E+02	0.0E+00	1.2E-05
1,2-Dichloroethene (total)	D	1.0E-02	NA	80/1442	1000	37	1.0E+05	NA	8.2E-03	0.0E+00
cis-1,2-Dichloroethene	D	1.0E-02	NA			37	NA	NA	0.0E+00	0.0E+00
1,4-Dioxane	B2	NA	1.1E-02	9/34	1000	0.77	NA	1.1E+01	0.0E+00	1.3E-06
2-Butanone	D	6.0E-01	NA	48/1509	3500	2,190	5.8E+03	NA	4.8E-04	0.0E+00
2-Chloro-1,3-butadiene	NA	2.0E-03	NA			19	NA	NA	0.0E+00	0.0E+00
2-Chloroethylvinyl ether	NA	NA	NA	1/599	60	NA	NA	NA	0.0E+00	0.0E+00
2-Hexanone	NA	4.0E-02	NA	28/1554	89	146	2.2E+03	NA	1.8E-04	0.0E+00
2-Picoline	NA	NA	NA	1/33	51	NA	NA	NA	0.0E+00	0.0E+00
3-Chloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methyl-2-pentanone	NA	5.0E-02	NA	38/1584	210	183	4.2E+03	NA	3.4E-04	0.0E+00
Acetone	D	1.0E-01	NA	101/1693	3800	365	3.8E+04	NA	3.1E-03	0.0E+00
Acetonitrile	NA	6.0E-03	NA	7/45	180	22	3.0E+04	NA	2.5E-03	0.0E+00
Acrylonitrile	B1	5.7E-04	5.4E-01	3/123	34	0.016	6.0E+04	1.8E+01	4.9E-03	2.2E-06
Benzene	A	NA	2.9E-02	43/1630	160	0.062	NA	4.6E+00	0.0E+00	5.6E-07
Bromochloromethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bromodichloromethane	B2	2.0E-02	6.2E-02	3/1588	5	0.14	2.5E+02	3.1E-01	2.0E-05	3.7E-08
Bromoform	B2	2.0E-02	7.9E-03	5/1589	5.4	0.38	2.7E+02	4.3E-02	2.2E-05	5.1E-09
Bromomethane	D	1.4E-03	NA			1.08	NA	NA	0.0E+00	0.0E+00
Carbon tetrachloride	B2	7.0E-04	1.3E-01	6/1590	21	0.026	3.0E+04	2.7E+00	2.5E-03	3.3E-07
Carbon disulfide	NA	1.0E-01	NA	44/1554	109	2.8	1.1E+03	NA	8.9E-05	0.0E+00
Chlorobenzene	D	2.0E-02	NA	7/1590	10	5.2	5.0E+02	NA	4.1E-05	0.0E+00
Chloroethane	NA	2.9E+00	NA	13/1367	1700	2,784	5.9E+02	NA	4.9E-05	0.0E+00
Chloroform	B2	1.0E-02	6.1E-03	42/1590	1300	0.028	1.3E+05	7.9E+00	1.1E-02	9.6E-07
Chloromethane	NA	NA	1.3E-02	6/1558	13	0.23	NA	1.7E-01	0.0E+00	2.0E-08
Cumene	NA	4.0E-02	NA			146	NA	NA	0.0E+00	0.0E+00
Dibromochloromethane	C	2.0E-02	8.4E-02	2/1588	6.1	0.10	3.1E+02	5.1E-01	2.5E-05	6.2E-08
Dibromomethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,2-Dichloropropane	B2	1.1E-03	6.8E-02			0.033	NA	NA	0.0E+00	0.0E+00
Dichlorodifluoromethane	D	2.0E-01	NA	1/97	7.4	52	3.7E+01	NA	3.0E-06	0.0E+00
Ethyl cyanide	NA	NA	NA	7/110	5600	NA	NA	NA	0.0E+00	0.0E+00
Ethyl methacrylate	NA	9.0E-02	NA			329	NA	NA	0.0E+00	0.0E+00
Methyl methacrylate	NA	8.0E-02	NA	1/118	11	292	1.4E+02	NA	1.1E-05	0.0E+00
Ethylbenzene	D	1.0E-01	NA	18/1611	38	158	3.8E+02	NA	3.1E-05	0.0E+00
Iodomethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isobutyl alcohol	NA	3.0E-01	NA	7/39	2100	1,095	7.0E+03	NA	5.7E-04	0.0E+00
Methacrylonitrile	NA	2.0E-04	NA	1/111	1	NA	5.0E+03	NA	4.1E-04	0.0E+00
Methylene chloride	B2	6.0E-02	7.5E-03	36/1753	490	0.63	8.2E+03	3.7E+00	6.7E-04	4.4E-07
Pentachloroethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pyridine	NA	1.0E-03	NA			3.7	NA	NA	0.0E+00	0.0E+00
Styrene	C	2.0E-01	3.0E-02	2/1558	10	0.28	5.0E+01	3.0E-01	4.1E-06	3.6E-08
Tetrachloroethene [4]	NA	1.0E-02	5.2E-02	74/1757	2600	0.14	2.6E+05	1.4E+02	2.1E-02	1.6E-05
Toluene	D	2.0E-01	NA	64/1783	180	93	9.0E+02	NA	7.4E-05	0.0E+00
Total Xylenes	D	2.0E+00	NA	35/1598	400	7,300	2.0E+02	NA	1.6E-05	0.0E+00
Trichloroethene	NA	6.0E-03	1.1E-02	93/1753	12000	0.25	2.0E+06	1.3E+02	1.6E-01	1.6E-05
Trichlorofluoromethane	D	3.0E-01	NA	3/148	66	165	2.2E+02	NA	1.8E-05	0.0E+00
Vinyl acetate	NA	1.0E+00	NA	2/1176	2	3,650	2.0E+00	NA	1.6E-07	0.0E+00
Vinyl chloride	A	NA	1.9E+00	30/1589	160	0.0028	NA	3.0E+02	0.0E+00	3.7E-05
cis-1,3-Dichloropropene	NA	NA	1.3E-01	1/1590	1	0.011	NA	1.3E-01	0.0E+00	1.6E-08
trans-1,2-Dichloroethene	D	2.0E-02	NA	6/613	18	73	9.0E+02	NA	7.4E-05	0.0E+00
trans-1,3-Dichloropropene	B2	NA	1.8E-01			0.013	NA	NA	0.0E+00	0.0E+00
trans-1,4-Dichloro-2-butene	B2	NA	9.3E+00	1/106	81	0.00024	NA	7.5E+02	0.0E+00	9.1E-05

DRAFT

Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	Overall CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
1,2,4-Trichlorobenzene	D	1.0E-02	NA	3/413	5	2.3	5.0E+02	NA	4.1E-05	0.0E+00
1,2-Dichlorobenzene	D	9.0E-02	NA	1/360	4	47	4.4E+01	NA	3.6E-06	0.0E+00
1,3,5-Trinitrobenzene	NA	5.0E-05	NA			0.18	NA	NA	0.0E+00	0.0E+00
1,3-Dichlorobenzene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,3-Dinitrobenzene	D	1.0E-04	NA			0.37	NA	NA	0.0E+00	0.0E+00
1,4-Dichlorobenzene	B2	2.3E-01	2.4E-02			0.35	NA	NA	0.0E+00	0.0E+00
1,4-Naphthaquinone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Hexadecyne	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,3,4,6-Tetrachlorophenol	NA	3.0E-02	NA	1/27	4.2	110	1.4E+02	NA	1.1E-05	0.0E+00
2,4,5-Trichlorophenol	NA	1.0E-01	NA			365	NA	NA	0.0E+00	0.0E+00
2,4,6-Trichlorophenol	B2	NA	1.1E-02			0.77	NA	NA	0.0E+00	0.0E+00
2,4-Dichlorophenol	D	3.0E-03	NA	1/390	4	11	1.3E+03	NA	1.1E-04	0.0E+00
2,4-Dimethylphenol	NA	2.0E-02	NA	8/393	170	73	8.5E+03	NA	7.0E-04	0.0E+00
2,4-Dinitrophenol	NA	2.0E-03	NA	4/366	24	7.3	1.2E+04	NA	9.8E-04	0.0E+00
2,4-Dinitrotoluene	B2	2.0E-03	6.8E-01			0.013	NA	NA	0.0E+00	0.0E+00
2,6-Dichlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,6-Dinitrotoluene	B2	1.0E-03	6.8E-01	7/415	11	0.013	1.1E+04	7.5E+00	9.0E-04	9.0E-07
2-Acetylaminofluorene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Benzyl-4-chlorophenol	NA	NA	NA	1/39	32	NA	NA	NA	0.0E+00	0.0E+00
2-Chloronaphthalene	NA	8.0E-02	NA			292	NA	NA	0.0E+00	0.0E+00
2-Chlorophenol	D	5.0E-03	NA	2/391	160	18	3.2E+04	NA	2.6E-03	0.0E+00
2-Methylnaphthalene [5]	NA	NA	NA	4/390	16	146	NA	NA	0.0E+00	0.0E+00
2-Methylphenol	C	5.0E-02	NA	5/391	110	183	2.2E+03	NA	1.8E-04	0.0E+00
2-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitroaniline	NA	6.0E-05	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitrophenol	NA	NA	NA	5/393	7.2	NA	NA	NA	0.0E+00	0.0E+00
3,3'-Dichlorobenzidine	B2	NA	4.5E-01			0.019	NA	NA	0.0E+00	0.0E+00
3,3'-Dimethylbenzidine	B2	NA	9.2E+00			0.00093	NA	NA	0.0E+00	0.0E+00
3-Methylcholanthrene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Methylphenol	C	5.0E-02	NA	2/67	9	183	1.8E+02	NA	1.5E-05	0.0E+00
3-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4,6-Dinitro-2-methylphenol	NA	NA	NA	2/378	12	NA	NA	NA	0.0E+00	0.0E+00
4-Aminobiphenyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Bromophenyl phenyl ether	D	5.8E-02	NA			212	NA	NA	0.0E+00	0.0E+00
4-Chloro-3-methylphenol [6]	NA	NA	NA	5/394	200	NA	NA	NA	0.0E+00	0.0E+00
4-Chloroaniline	NA	4.0E-03	NA			15	NA	NA	0.0E+00	0.0E+00
4-Chlorophenyl phenyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methylphenol	C	5.0E-03	NA	9/342	140	18	2.8E+04	NA	2.3E-03	0.0E+00
4-Nitroaniline	NA	3.0E-03	NA			11	NA	NA	0.0E+00	0.0E+00
4-Nitrophenol	D	6.2E-02	NA	7/381	80	228	1.3E+03	NA	1.1E-04	0.0E+00
4-Nitroquinoline-1-oxide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
5-Nitro-o-toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
7,12-Dimethylbenz(a)anthracene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acenaphthene	NA	6.0E-02	NA	5/391	12	219	2.0E+02	NA	1.6E-05	0.0E+00
Acenaphthylene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acetophenone	D	1.0E-01	NA	1/31	4	0.0055	4.0E+01	NA	3.3E-06	0.0E+00
Aniline	B2	2.9E-04	5.7E-03			1.5	NA	NA	0.0E+00	0.0E+00
Anthracene	D	3.0E-01	NA	3/419	17	1,095	5.7E+01	NA	4.6E-06	0.0E+00
Aramite	B2	5.0E-02	2.5E-02			0.34	NA	NA	0.0E+00	0.0E+00
Benzo(a)anthracene	B2	NA	1.1E+00	1/417	1	0.0077	NA	1.1E+00	0.0E+00	1.3E-07
Benzo(a)pyrene	B2	NA	7.3E+00			0.0012	NA	NA	0.0E+00	0.0E+00
Benzo(b)fluoranthene	B2	NA	9.0E-01			0.0095	NA	NA	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Benzo(k)fluoranthene	D	NA	3.8E-01			0.022	NA	NA	0.0E+00	0.0E+00
Benzoic Acid	NA	4.0E+00	NA	11/299	150	14,600	3.8E+01	NA	3.1E-06	0.0E+00
Benzyl alcohol	NA	3.0E-01	NA	2/338	3	1,095	1.0E+01	NA	8.2E-07	0.0E+00
Butyl benzyl phthalate	C	2.0E-01	NA	28/417	4	730	2.0E+01	NA	1.6E-06	0.0E+00
Carbazole	B2	NA	2.0E-02	2/152	18	0.43	NA	3.6E-01	0.0E+00	4.3E-08
Chlorobenzilate	NA	2.0E-02	NA	1/27	10	73	5.0E+02	NA	4.1E-05	0.0E+00
Chrysene	B2	NA	3.2E-02	1/417	2	0.20	NA	6.4E-02	0.0E+00	7.7E-09
Di-n-butylphthalate	D	1.0E-01	NA	23/415	60	365	6.0E+02	NA	4.9E-05	0.0E+00
Di-n-octylphthalate	NA	2.0E-02	NA	1/378	2	73	1.0E+02	NA	8.2E-06	0.0E+00
Diallate	B2	NA	6.1E-02			0.14	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	Overall CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds (Con't.)										
Dibenzo(a,h)anthracene	B2	NA	8.1E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Dibenzofuran	D	4.0E-03	NA	3/415	8	15	2.0E+03	NA	1.6E-04	0.0E+00
Diethyl phthalate	D	8.0E-01	NA	16/415	25	2,920	3.1E+01	NA	2.6E-06	0.0E+00
Dimethoate	NA	2.0E-04	NA			0.73	NA	NA	0.0E+00	0.0E+00
Dimethyl phthalate	D	1.0E+01	NA			36,500	NA	NA	0.0E+00	0.0E+00
Diphenylamine	D	2.5E-02	NA			91	NA	NA	0.0E+00	0.0E+00
Ethyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Famphur	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Fluoranthene	D	4.0E-02	NA	3/417	9	146	2.3E+02	NA	1.6E-05	0.0E+00
Fluorene	D	4.0E-02	NA	4/415	13	146	3.3E+02	NA	2.7E-05	0.0E+00
Hexachlorobenzene	B2	8.0E-04	1.6E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Hexachlorobutadiene	C	NA	7.8E-02			0.023	NA	NA	0.0E+00	0.0E+00
Hexachlorocyclopentadiene	D	7.0E-03	NA			0.019	NA	NA	0.0E+00	0.0E+00
Hexachloroethane	C	1.0E-03	1.4E-02	1/414	19	0.13	1.9E+04	2.7E-01	1.6E-03	3.2E-08
Hexachlorophene	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Hexachloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	B2	NA	2.0E+00			0.0043	NA	NA	0.0E+00	0.0E+00
Isodrin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isophorone	C	2.0E-01	9.5E-04	1/414	2	9.0	1.0E+01	1.9E-03	8.2E-07	2.3E-10
Isosafrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Kepone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methapyrilene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-propylamine	B2	NA	7.0E+00	3/411	8	0.0012	NA	5.6E+01	0.0E+00	6.8E-06
N-Nitroso-di-n-butylamine	B2	NA	5.4E+00			0.0016	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiethylamine	B2	NA	1.5E+02	1/33	4	0.000057	NA	6.0E+02	0.0E+00	7.2E-05
N-Nitrosodimethylamine	B2	NA	5.1E+01			0.00017	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiphenylamine	B2	NA	4.9E-03	5/414	10	1.7	NA	4.9E-02	0.0E+00	5.9E-09
N-Nitrosomethylethylamine	B2	NA	2.2E+01			0.00039	NA	NA	0.0E+00	0.0E+00
N-Nitrosomorpholine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopiperidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopyrrolidine	B2	NA	2.1E+00			0.00406	NA	NA	0.0E+00	0.0E+00
Naphthalene	D	4.0E-02	NA	11/414	16	146	4.0E+02	NA	3.3E-05	0.0E+00
Nitrobenzene	D	5.0E-04	NA	2/413	6	0.43	1.2E+04	NA	9.8E-04	0.0E+00
o,o,o-Triethylphosphorothioate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pentachlorobenzene	D	8.0E-04	NA			2.9	NA	NA	0.0E+00	0.0E+00
Pentachloronitrobenzene	C	3.0E-03	2.6E-01			0.033	NA	NA	0.0E+00	0.0E+00
Pentachlorophenol	B2	3.0E-02	1.2E-01	8/393	200	0.071	6.7E+03	2.4E+01	5.5E-04	2.9E-06
Phenacetin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenanthrene	D	NA	NA	1/417	35	NA	NA	NA	0.0E+00	0.0E+00
Phenol	D	6.0E-01	NA	24/394	220	2,190	3.7E+02	NA	3.0E-05	0.0E+00
Phorate	NA	2.0E-04	NA			0.73	NA	NA	0.0E+00	0.0E+00
Pronamide	NA	7.5E-02	NA			274	NA	NA	0.0E+00	0.0E+00
Pyrene	D	3.0E-02	NA	3/418	8	110	2.7E+02	NA	2.2E-05	0.0E+00
Safrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Thionazin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Tributyl phosphate [4]	NA	5.0E-03	NA	10/79	450	18	9.0E+04	NA	7.4E-03	0.0E+00
a,a-Dimethylphenethylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethoxy)methane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethyl)ether	NA	NA	1.1E+00			0.00206	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroisopropyl)ether	C	NA	7.0E-02			0.042	NA	NA	0.0E+00	0.0E+00
Bis(2-ethylhexyl)phthalate	B2	2.0E-02	1.4E-02	50/417	350	0.61	1.8E+04	4.9E+00	1.4E-03	5.9E-07
o-Toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Dimethylaminoazobenzene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Phenylenediamine	NA	1.9E-01	NA			694	NA	NA	0.0E+00	0.0E+00
Azinphosmethyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	Overall CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Pesticides/PCBs										
4-4'-DDD	B2	NA	2.4E-01			0.035	NA	NA	0.0E+00	0.0E+00
4-4'-DDE	B2	NA	3.4E-01			0.025	NA	NA	0.0E+00	0.0E+00
4-4'-DDT	B2	5.0E-04	3.4E-01	1/364	3	0.025	6.0E+03	1.0E+00	4.9E-04	1.2E-07
Aldrin	B2	3.0E-05	1.7E+01	1/362	0.11	0.00050	3.7E+03	1.9E+00	3.0E-04	2.3E-07
Arochlor 1016	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1221	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1232	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1242	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1248	B2	NA	7.7E+00	1/364	3.1	0.0011	NA	2.4E+01	0.0E+00	2.9E-06
Arochlor 1254	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1260	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Chlordane	B2	6.0E-05	1.3E+00			0.0066	NA	NA	0.0E+00	0.0E+00
Demeton	NA	4.0E-05	NA			0.15	NA	NA	0.0E+00	0.0E+00
Diazinon	NA	9.0E-04	NA			3.3	NA	NA	0.0E+00	0.0E+00
Dieldrin	B2	5.0E-05	1.6E+01	2/364	0.016	0.00053	3.2E+02	2.6E-01	2.6E-05	3.1E-08
Disulfoton	NA	4.0E-05	NA			0.15	NA	NA	0.0E+00	0.0E+00
Endosulfan II [7]	NA	6.0E-03	NA	1/361	0.15	21.9	2.5E+01	NA	2.0E-06	0.0E+00
Endosulfan sulfate [8]	NA	NA	NA	1/364	2.6	21.9	NA	NA	0.0E+00	0.0E+00
Endosulfan I [7]	NA	6.0E-03	NA	1/364	0.025	21.9	4.2E+00	NA	3.4E-07	0.0E+00
Endrin	D	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Endrin aldehyde	NA	NA	NA			1.1	NA	NA	0.0E+00	0.0E+00
Endrin ketone	NA	NA	NA	1/311	0.01	NA	NA	NA	0.0E+00	0.0E+00
Ethion	NA	5.0E-04	NA			1.8	NA	NA	0.0E+00	0.0E+00
Heptachlor	B2	5.0E-04	4.5E+00	1/362	0.07	0.00039	1.4E+02	3.2E-01	1.1E-05	3.8E-08
Heptachlor epoxide	B2	1.3E-05	9.1E+00	1/364	0.058	0.00020	4.5E+03	5.3E-01	3.7E-04	6.4E-08
Malathion	D	2.0E-02	NA			73	NA	NA	0.0E+00	0.0E+00
Methoxychlor	D	5.0E-03	NA			18	NA	NA	0.0E+00	0.0E+00
Ethyl parathion	C	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl parathion	D	2.5E-04	NA			0.91	NA	NA	0.0E+00	0.0E+00
Toxaphene	B2	NA	1.1E+00			0.0077	NA	NA	0.0E+00	0.0E+00
Alpha-BHC	B2	NA	6.3E+00			0.0014	NA	NA	0.0E+00	0.0E+00
Alpha-Chlordane	NA	6.0E-05	1.3E+00			0.0066	NA	NA	0.0E+00	0.0E+00
Beta-BHC	C	NA	1.8E+00			0.0047	NA	NA	0.0E+00	0.0E+00
Delta-BHC	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Gamma-BHC (Lindane)	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Gamma-Chlordane	NA	6.0E-05	1.3E+00			0.0066	NA	NA	0.0E+00	0.0E+00
Dioxins/Furans [10]										
Dioxins										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	B2	NA	1.5E+05	1/43	1.7	**********	NA	2.6E+05	0.0E+00	3.1E-02
Tetrachlorodibenzo-p-dioxins	B2		1.5E+05	1/45	3.8	**********				
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	B2	NA	1.5E+05	2/27	3.3	0.0000057	NA	5.0E+05	0.0E+00	6.0E-02
Heptachlorodibenzo-p-dioxins	B2	NA	1.5E+05	2/36	3.5	0.0000057	NA	5.3E+05	0.0E+00	6.3E-02
Octachlorodibenzo-p-dioxin	B2	NA	1.5E+05	6/36	25.5	0.000057	NA	3.8E+06	0.0E+00	4.6E-01
Furans										
2,3,7,8-Tetrachlorodibenzofuran	B2	NA	1.5E+05	2/33	2.6	0.00000057	NA	3.9E+05	0.0E+00	4.7E-02
Tetrachlorodibenzofurans	B2	NA	1.5E+05	5/46	7.7	0.00000057	NA	1.2E+06	0.0E+00	1.4E-01
1,2,3,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05	1/28	0.64	0.0000011	NA	9.6E+04	0.0E+00	1.2E-02
2,3,4,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05	1/27	0.91	0.00000011	NA	1.4E+05	0.0E+00	1.6E-02
Pentachlorodibenzofurans	B2	NA	1.5E+05	4/46	5.9	0.00000011	NA	8.9E+05	0.0E+00	1.1E-01
Hexachlorodibenzofurans	B2	NA	1.5E+05	2/45	0.38	0.00000057	NA	5.7E+04	0.0E+00	6.9E-03
Heptachlorodibenzofurans	B2	NA	1.5E+05	2/36	1.5	0.0000057	NA	2.3E+05	0.0E+00	2.7E-02
Octachlorodibenzofuran	B2	NA	1.5E+05	4/36	1.6	0.000057	NA	2.4E+05	0.0E+00	2.9E-02
Herbicides										
2,4,5-T	D	1.0E-02	NA			37	NA	NA	0.0E+00	0.0E+00
2,4,5-TP (Silvex)	D	8.0E-03	NA			29	NA	NA	0.0E+00	0.0E+00
2,4-D	D	1.0E-02	NA			37	NA	NA	0.0E+00	0.0E+00
Dinoseb	D	1.0E-03	NA			3.7	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	Overall CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Inorganics										
Aluminum	NA	2.9E+00	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Antimony	D	4.0E-04	NA	NA	NA	1.5	NA	NA	0.0E+00	0.0E+00
Arsenic	A	3.0E-04	1.8E+00	NA	NA	0.0049	NA	NA	0.0E+00	0.0E+00
Barium	D	7.0E-02	NA	NA	NA	256	NA	NA	0.0E+00	0.0E+00
Beryllium	B2	5.0E-03	4.3E+00	NA	NA	0.0020	NA	NA	0.0E+00	0.0E+00
Boron	D	9.0E-02	NA	NA	NA	329	NA	NA	0.0E+00	0.0E+00
Cadmium	B1	5.0E-04	6.1E+00	NA	NA	1.8	NA	NA	0.0E+00	0.0E+00
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Chromium, hexavalent	A	5.0E-03	4.2E+01	NA	NA	18	NA	NA	0.0E+00	0.0E+00
Chromium, trivalent	NA	1.0E+00	NA	NA	NA	3,650	NA	NA	0.0E+00	0.0E+00
Cobalt	NA	6.0E-02	NA	NA	NA	219	NA	NA	0.0E+00	0.0E+00
Copper	D	3.7E-02	NA	NA	NA	136	NA	NA	0.0E+00	0.0E+00
Cyanide	D	2.0E-02	NA	NA	NA	73	NA	NA	0.0E+00	0.0E+00
Iron	NA	NA	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Lead	B2	NA	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Magnesium [4]	NA	9.7E+00	NA	NA	NA	35,405	NA	NA	0.0E+00	0.0E+00
Manganese	D	5.0E-03	NA	NA	NA	18	NA	NA	0.0E+00	0.0E+00
Mercury	D	3.0E-04	NA	NA	NA	1.1	NA	NA	0.0E+00	0.0E+00
Molybdenum	D	5.0E-03	NA	NA	NA	18	NA	NA	0.0E+00	0.0E+00
Nickel	D	2.0E-02	8.4E-01	NA	NA	73	NA	NA	0.0E+00	0.0E+00
Osmium	NA	NA	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Selenium	D	5.0E-03	NA	NA	NA	18	NA	NA	0.0E+00	0.0E+00
Silver	D	5.0E-03	NA	NA	NA	18	NA	NA	0.0E+00	0.0E+00
Thallium	NA	7.0E-05	NA	NA	NA	0.26	NA	NA	0.0E+00	0.0E+00
Tin	NA	6.0E-01	NA	NA	NA	2,190	NA	NA	0.0E+00	0.0E+00
Uranium	NA	3.0E-03	NA	NA	NA	11	NA	NA	0.0E+00	0.0E+00
Vanadium	D	7.0E-03	NA	NA	NA	26	NA	NA	0.0E+00	0.0E+00
Zinc	D	3.0E-01	NA	NA	NA	1,095	NA	NA	0.0E+00	0.0E+00
Conventional Parameters										
Ammonia	NA	2.9E-02	NA	NA	NA	NA	NA	NA	0.0E+00	0.0E+00
Fluoride	NA	6.0E-02	NA	NA	NA	219	NA	NA	0.0E+00	0.0E+00
Nitrate	NA	1.6E+00	NA	NA	NA	5,840	NA	NA	0.0E+00	0.0E+00
Nitrite	NA	1.0E-01	NA	NA	NA	365	NA	NA	0.0E+00	0.0E+00
Sulfate	NA	NA	NA	NA	NA	250,000	NA	NA	0.0E+00	0.0E+00
Sum of All RI Values							1.2E+07	8.3E+06		

NOTES:

[1] See Table A.4-3 for literature sources from which the toxicity criteria were obtained, unless otherwise noted. Oral cancer slope factors and reference doses were used in the toxicity screen. Inhalation cancer slope factors and reference doses were used in the absence of oral data.
[2] Groundwater concentrations presented represent the maximum of filtered and unfiltered concentrations over Type 1, 2, 3, and 4 wells.
[3] Used for the evaluation of future exposure scenarios involving parent isotope in equilibrium with daughters.
[4] Toxicity criteria acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.
[5] Screening level for naphthalene used as a surrogate.
[6] Screening level for 2-methylphenol used as a surrogate.
[7] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk-Based Concentrations) used for endosulfan I and II.
[8] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[9] Screening level for endrin used as a surrogate.
[10] Dioxin/furan concentration presented is the 2378-TCDD toxic equivalent concentration.

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TABLE A.III – 7
ORGANIC CONTAMINANT TOXICITY SCREEN
SITE: FERNALD OPERABLE UNIT 5
DATE: 06–18–94
MEDIA: SURFACE WATER
ENTERED: PBM/JKL
CHECKED: JKL
FILE: OU5SWCOC

Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (Risk/pCi)	Overall Frequency of Detection	CMAX [2] (pCi/L)	Screening Level (pCi/L)	RINC	RiC	ERINC	ERIC
Radionuclides										
Actinium–227	NA	NA	2.8E–10	NA		0.017	NA	NA	0.0E+00	0.0E+00
Actinium–227+7D	NA	NA	3.5E–10	NA		0.014	NA	NA	0.0E+00	0.0E+00
Cesium–137	NA	NA	2.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00
Cesium–137+1D	NA	NA	2.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00
Lead–210	NA	NA	5.1E–10	NA		0.0093	NA	NA	0.0E+00	0.0E+00
Lead–210+2D	NA	NA	6.6E–10	NA		0.0072	NA	NA	0.0E+00	0.0E+00
Neptunium–237	NA	NA	2.2E–10	NA		0.022	NA	NA	0.0E+00	0.0E+00
Neptunium–237+1D	NA	NA	2.2E–10	NA		0.022	NA	NA	0.0E+00	0.0E+00
Plutonium–238	NA	NA	2.2E–10	NA		0.022	NA	NA	0.0E+00	0.0E+00
Plutonium–239	NA	NA	2.3E–10	NA		0.021	NA	NA	0.0E+00	0.0E+00
Plutonium–240	NA	NA	2.3E–10	NA		0.021	NA	NA	0.0E+00	0.0E+00
Polonium–210	NA	NA	1.5E–10	NA		0.032	NA	NA	0.0E+00	0.0E+00
Potassium–40	NA	NA	1.1E–11	NA		0.43	NA	NA	0.0E+00	0.0E+00
Protactinium–231	NA	NA	9.2E–11	NA		0.052	NA	NA	0.0E+00	0.0E+00
Radium–224	NA	NA	3.8E–11	NA		0.13	NA	NA	0.0E+00	0.0E+00
Radium–226	NA	NA	1.2E–10	NA		0.040	NA	NA	0.0E+00	0.0E+00
Radium–226+5D	NA	NA	1.2E–10	NA		0.032	NA	NA	0.0E+00	0.0E+00
Radium–226+8D [3]	NA	NA	7.8E–10	NA		0.0059	NA	NA	0.0E+00	0.0E+00
Radium–228	NA	NA	1.0E–10	NA		0.048	NA	NA	0.0E+00	0.0E+00
Radium–228+1D	NA	NA	1.0E–10	NA		0.048	NA	NA	0.0E+00	0.0E+00
Radon–222	NA	NA	1.4E–12	NA		1.2	NA	NA	0.0E+00	0.0E+00
Radon–222+4D	NA	NA	1.7E–12	NA		0.16	NA	NA	0.0E+00	0.0E+00
Ruthenium–106	NA	NA	8.5E–12	NA		0.50	NA	NA	0.0E+00	0.0E+00
Strontium–90	NA	NA	3.3E–11	NA		0.14	NA	NA	0.0E+00	0.0E+00
Strontium–90+1D	NA	NA	3.6E–11	NA		0.13	NA	NA	0.0E+00	0.0E+00
Technetium–99	NA	NA	1.3E–12	NA		3.7	NA	NA	0.0E+00	0.0E+00
Thorium–228	NA	NA	1.1E–11	NA		0.43	NA	NA	0.0E+00	0.0E+00
Thorium–228+7D	NA	NA	5.5E–11	NA		0.087	NA	NA	0.0E+00	0.0E+00
Thorium–230	NA	NA	1.3E–11	NA		0.37	NA	NA	0.0E+00	0.0E+00
Thorium–232	NA	NA	1.2E–11	NA		0.40	NA	NA	0.0E+00	0.0E+00
Thorium–232+10D [3]	NA	NA	1.7E–10	NA		0.028	NA	NA	0.0E+00	0.0E+00
Thorium–234	NA	NA	4.0E–12	NA		1.2	NA	NA	0.0E+00	0.0E+00
Uranium–233	NA	NA	1.6E–11	NA		0.30	NA	NA	0.0E+00	0.0E+00
Uranium–234	NA	NA	1.6E–11	NA		0.30	NA	NA	0.0E+00	0.0E+00
Uranium–235	NA	NA	1.6E–11	NA		0.30	NA	NA	0.0E+00	0.0E+00
Uranium–235+1D	NA	NA	1.6E–11	NA		0.30	NA	NA	0.0E+00	0.0E+00
Uranium–236	NA	NA	1.5E–11	NA		0.32	NA	NA	0.0E+00	0.0E+00
Uranium–238	NA	NA	1.6E–11	NA		0.30	NA	NA	0.0E+00	0.0E+00
Uranium–238+2D	NA	NA	2.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	C	3.0E-02	2.6E-02			0.069	NA	NA	0.0E+00	0.0E+00
1,1,1-Trichloroethane	D	2.9E-01	NA	1/25	4	151	1.4E+01	NA	3.0E-04	0.0E+00
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01			0.0080	NA	NA	0.0E+00	0.0E+00
1,1,2-Trichloroethane	C	4.0E-03	5.7E-02			0.032	NA	NA	0.0E+00	0.0E+00
1,1-Dichloroethane	C	1.0E-01	NA	2/25	10	97	1.0E+02	NA	2.1E-03	0.0E+00
1,1-Dichloroethene	C	9.0E-03	6.0E-01			0.0067	NA	NA	0.0E+00	0.0E+00
1,2,3-Trichloropropane	B2	6.0E-03	NA			22	NA	NA	0.0E+00	0.0E+00
1,2-Dibromo-3-chloropropane	B2	5.7E-05	1.4E+00			0.0061	NA	NA	0.0E+00	0.0E+00
1,2-Dibromoethane	B2	5.7E-05	8.5E+01			0.00010	NA	NA	0.0E+00	0.0E+00
1,2-Dichloroethane	B2	NA	9.1E-02			0.020	NA	NA	0.0E+00	0.0E+00
cis-1,2-Dichloroethene	D	1.0E-02	NA	1/25	67	37	6.7E+03	NA	[illegible]-01	0.0E+00
1,4-Dioxane	B2	NA	1.1E-02			0.77	NA	NA	[illegible]+00	0.0E+00
2-Butanone	D	6.0E-01	NA			2,190	NA	NA	[illegible]+00	0.0E+00
2-Chloro-1,3-butadiene	NA	2.0E-03	NA			19	NA	NA	[illegible]+00	0.0E+00
2-Chloroethylvinyl ether	NA	NA	NA			NA	NA	NA	[illegible]+00	0.0E+00
2-Hexanone	NA	4.0E-02	NA	1/25	19	146	4.8E+02	[illegible]	1.0E-02	0.0E+00
2-Picoline	NA	NA	NA			NA	NA		0.0E+00	0.0E+00
3-Chloropropene	NA	NA	NA			NA	NA		0.0E+00	0.0E+00
4-Methyl-2-pentanone	NA	5.0E-02	NA	1/25	16	183	3.2E+02	A	6.8E-03	0.0E+00
Acetone	D	1.0E-01	NA			365	NA	A	0.0E+00	0.0E+00
Acetonitrile	NA	6.0E-03	NA			22	NA	NA	0.0E+00	0.0E+00
Acrolein	C	5.7E-06	NA			73	NA	NA	0.0E+00	0.0E+00
Acrylonitrile	B1	5.7E-04	5.4E-01			0.016	NA	NA	0.0E+00	0.0E+00
Benzene	A	NA	2.9E-02			0.062	NA	NA	0.0E+00	0.0E+00
Bromochloromethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bromodichloromethane	B2	2.0E-02	6.2E-02			0.14	NA	NA	0.0E+00	0.0E+00
Bromoform	B2	2.0E-02	7.9E-03			0.38	NA	NA	0.0E+00	0.0E+00
Bromomethane	D	1.4E-03	NA			1.08	NA	NA	0.0E+00	0.0E+00
Carbon tetrachloride	B2	7.0E-04	1.3E-01			0.026	NA	NA	0.0E+00	0.0E+00
Carbon disulfide	NA	1.0E-01	NA			2.8	NA	NA	0.0E+00	0.0E+00
Chlorobenzene	D	2.0E-02	NA			5.2	NA	NA	0.0E+00	0.0E+00
Chloroethane	NA	2.9E+00	NA			2,784	NA	NA	0.0E+00	0.0E+00
Chloroform	B2	1.0E-02	6.1E-03			0.028	NA	NA	0.0E+00	0.0E+00
Chloromethane	NA	NA	1.3E-02			0.23	NA	NA	0.0E+00	0.0E+00
Cumene	NA	4.0E-02	NA			146	NA	NA	0.0E+00	0.0E+00
Dibromochloromethane	C	2.0E-02	8.4E-02			0.10	NA	NA	0.0E+00	0.0E+00
Dibromomethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,2-Dichloropropane	B2	1.1E-03	6.8E-02			0.033	NA	NA	0.0E+00	0.0E+00
Dichlorodifluoromethane	D	2.0E-01	NA			52	NA	NA	0.0E+00	0.0E+00
Ethyl cyanide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethyl methacrylate	NA	9.0E-02	NA			329	NA	NA	0.0E+00	0.0E+00
Methyl methacrylate	NA	8.0E-02	NA			292	NA	NA	0.0E+00	0.0E+00
Ethylbenzene	D	1.0E-01	NA			158	NA	NA	0.0E+00	0.0E+00
Iodomethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isobutyl alcohol	NA	3.0E-01	NA			1,095	NA	NA	0.0E+00	0.0E+00
Methacrylonitrile	NA	2.0E-04	NA			NA	NA	NA	0.0E+00	0.0E+00
Methylene chloride	B2	6.0E-02	7.5E-03			0.63	NA	NA	0.0E+00	0.0E+00
Pentachloroethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pyridine	NA	1.0E-03	NA			3.7	NA	NA	0.0E+00	0.0E+00
Styrene	C	2.0E-01	3.0E-02			0.28	NA	NA	0.0E+00	0.0E+00
Tetrachloroethene [4]	NA	1.0E-02	5.2E-02	9/25	240	0.14	2.4E+04	1.2E+01	5.1E-01	8.4E-01
Toluene	D	2.0E-01	NA			93	NA	NA	0.0E+00	0.0E+00
Total Xylenes	D	2.0E+00	NA			7,300	NA	NA	0.0E+00	0.0E+00
Trichloroethene	NA	6.0E-03	1.1E-02	7/25	18	0.25	3.0E+03	2.0E-01	6.4E-02	1.3E-02
Trichlorofluoromethane	D	3.0E-01	NA			165	NA	NA	0.0E+00	0.0E+00
Vinyl acetate	NA	1.0E+00	NA			3,650	NA	NA	0.0E+00	0.0E+00
Vinyl chloride	A	NA	1.9E+00			0.0028	NA	NA	0.0E+00	0.0E+00
cis-1,3-Dichloropropene	NA	NA	1.3E-01			0.011	NA	NA	0.0E+00	0.0E+00
trans-1,2-Dichloroethene	D	2.0E-02	NA			73	NA	NA	0.0E+00	0.0E+00
trans-1,3-Dichloropropene	B2	NA	1.8E-01			0.013	NA	NA	0.0E+00	0.0E+00
trans-1,4-Dichloro-2-butene	B2	NA	9.3E+00			0.00024	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (mg/kg/day)$^{-1}$	Overall Frequency of Detection	CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
1,2,4-Trichlorobenzene	D	1.0E-02	NA			2.3	NA	NA	0.0E+00	0.0E+00
1,2-Dichlorobenzene	D	9.0E-02	NA			47	NA	NA	0.0E+00	0.0E+00
1,3,5-Trinitrobenzene	NA	5.0E-05	NA			0.18	NA	NA	0.0E+00	0.0E+00
1,3-Dichlorobenzene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,3-Dinitrobenzene	D	1.0E-04	NA			0.37	NA	NA	0.0E+00	0.0E+00
1,4-Dichlorobenzene	B2	2.3E-01	2.4E-02			0.35	NA	NA	0.0E+00	0.0E+00
1,4-Naphthaquinone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Hexadecyne	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,3,4,6-Tetrachlorophenol	NA	3.0E-02	NA			110	NA	NA	0.0E+00	0.0E+00
2,4,5-Trichlorophenol	NA	1.0E-01	NA			365	NA	NA	0.0E+00	0.0E+00
2,4,6-Trichlorophenol	B2	NA	1.1E-02			0.77	NA	NA	0.0E+00	0.0E+00
2,4-Dichlorophenol	D	3.0E-03	NA			11	NA	NA	0.0E+00	0.0E+00
2,4-Dimethylphenol	NA	2.0E-02	NA			73	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrophenol	NA	2.0E-03	NA			7.3	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrotoluene	B2	2.0E-03	6.8E-01			0.013	NA	NA	0.0E+00	0.0E+00
2,6-Dichlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,6-Dinitrotoluene	B2	1.0E-03	6.8E-01			0.013	NA	NA	0.0E+00	0.0E+00
2-Acetylaminofluorene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Benzyl-4-chlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloronaphthalene	NA	8.0E-02	NA			292	NA	NA	0.0E+00	0.0E+00
2-Chlorophenol	D	5.0E-03	NA			18	NA	NA	0.0E+00	0.0E+00
2-Methylnaphthalene [5]	NA	NA	NA			146	NA	NA	0.0E+00	0.0E+00
2-Methylphenol	C	5.0E-02	NA			183	NA	NA	0.0E+00	0.0E+00
2-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitroaniline	NA	6.0E-05	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3,3'-Dichlorobenzidine	B2	NA	4.5E-01			0.019	NA	NA	0.0E+00	0.0E+00
3,3'-Dimethylbenzidine	B2	NA	9.2E+00			0.00093	NA	NA	0.0E+00	0.0E+00
3-Methylcholanthrene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Methylphenol	C	5.0E-02	NA			183	NA	NA	0.0E+00	0.0E+00
3-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4,6-Dinitro-2-methylphenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Aminobiphenyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Bromophenyl phenyl ether	D	5.8E-02	NA			212	NA	NA	0.0E+00	0.0E+00
4-Chloro-3-methylphenol [6]	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Chloroaniline	NA	4.0E-03	NA			15	NA	NA	0.0E+00	0.0E+00
4-Chlorophenyl phenyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methylphenol	C	5.0E-02	NA			18	NA	NA	0.0E+00	0.0E+00
4-Nitroaniline	NA	3.0E-03	NA			11	NA	NA	0.0E+00	0.0E+00
4-Nitrophenol	D	6.2E-02	NA			228	NA	NA	0.0E+00	0.0E+00
4-Nitroquinoline-1-oxide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
5-Nitro-o-toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
7,12-Dimethylbenz(a)anthracene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acenaphthene	NA	6.0E-02	NA			219	NA	NA	0.0E+00	0.0E+00
Acenaphthylene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acetophenone	D	1.0E-01	NA			0.0055	NA	NA	0.0E+00	0.0E+00
Aniline	B2	2.9E-04	5.7E-03			1.5	NA	NA	0.0E+00	0.0E+00
Anthracene	D	3.0E-01	NA			1,095	NA	NA	0.0E+00	0.0E+00
Aramite	B2	5.0E-02	2.5E-02			0.34	NA	NA	0.0E+00	0.0E+00
Benzo(a)anthracene	B2	NA	1.1E+00			0.0077	NA	NA	0.0E+00	0.0E+00
Benzo(a)pyrene	B2	NA	7.3E+00			0.0012	NA	NA	0.0E+00	0.0E+00
Benzo(b)fluoranthene	B2	NA	9.0E-01			0.0085	NA	NA	0.0E+00	0.0E+00
Benzo(g,h,i)perylene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Benzo(k)fluoranthene	D	NA	3.8E-01			0.022	NA	NA	0.0E+00	0.0E+00
Benzoic Acid	NA	4.0E+00	NA			14,600	NA	NA	0.0E+00	0.0E+00
Benzyl alcohol	NA	3.0E-01	NA			1,095	NA	NA	0.0E+00	0.0E+00
Butyl benzyl phthalate	C	2.0E-01	NA			730	NA	NA	0.0E+00	0.0E+00
Carbazole	B2	NA	2.0E-02			0.43	NA	NA	0.0E+00	0.0E+00
Chlorobenzilate	NA	2.0E-02	NA			73	NA	NA	0.0E+00	0.0E+00
Chrysene	B2	NA	3.2E-02			0.20	NA	NA	0.0E+00	0.0E+00
Di-n-butylphthalate	D	1.0E-01	NA	3/24	3	365	3.0E+01	NA	6.4E-04	0.0E+00
Di-n-octylphthalate	NA	2.0E-02	NA	3/24	89	73	4.5E+03	NA	9.4E-02	0.0E+00
Dialiate	B2	NA	6.1E-02			0.14	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds (Con't.)										
Dibenzo(a,h)anthracene	B2	NA	8.1E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Dibenzofuran	D	4.0E-03	NA			15	NA	NA	0.0E+00	0.0E+00
Diethyl phthalate	D	8.0E-01	NA	2/24	3	2,920	3.8E+00	NA	8.0E-05	0.0E+00
Dimethoate	NA	2.0E-04	NA			0.73	NA	NA	0.0E+00	0.0E+00
Dimethyl phthalate	D	1.0E+01	NA			36,500	NA	NA	0.0E+00	0.0E+00
Diphenylamine	D	2.5E-02	NA			91	NA	NA	0.0E+00	0.0E+00
Ethyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Famphur	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Fluoranthene	D	4.0E-02	NA			146	NA	NA	0.0E+00	0.0E+00
Fluorene	D	4.0E-02	NA			146	NA	NA	0.0E+00	0.0E+00
Hexachlorobenzene	B2	8.0E-04	1.6E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Hexachlorobutadiene	C	NA	7.8E-02			0.023	NA	NA	0.0E+00	0.0E+00
Hexachlorocyclpentadiene	D	7.0E-03	NA			0.019	NA	NA	0.0E+00	0.0E+00
Hexachloroethane	C	1.0E-03	1.4E-02			0.13	NA	NA	0.0E+00	0.0E+00
Hexachlorophene	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Hexachloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	B2	NA	2.0E+00			0.0043	NA	NA	0.0E+00	0.0E+00
Isodrin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isophorone	C	2.0E-01	9.5E-04			9.0	NA	NA	0.0E+00	0.0E+00
Isosafrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Kepone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methapyrilene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-propylamine	B2	NA	7.0E+00			0.0012	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-butylamine	B2	NA	5.4E+00			0.0016	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiethylamine	B2	NA	1.5E+02			0.000057	NA	NA	0.0E+00	0.0E+00
N-Nitrosodimethylamine	B2	NA	5.1E+01			0.00017	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiphenylamine	B2	NA	4.9E-03	1/24	4	1.7	NA	2.0E-02	0.0E+00	1.3E-03
N-Nitrosomethylethylamine	B2	NA	2.2E+01			0.00039	NA	NA	0.0E+00	0.0E+00
N-Nitrosomorpholine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopiperidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopyrrolidine	B2	NA	2.1E+00			0.00406	NA	NA	0.0E+00	0.0E+00
Naphthalene	D	4.0E-02	NA			146	NA	NA	0.0E+00	0.0E+00
Nitrobenzene	D	5.0E-04	NA			0.43	NA	NA	0.0E+00	0.0E+00
o,o,o-Triethylphosphorothioate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pentachlorobenzene	D	8.0E-04	NA			2.9	NA	NA	0.0E+00	0.0E+00
Pentachloronitrobenzene	C	3.0E-03	2.6E-01			0.033	NA	NA	0.0E+00	0.0E+00
Pentachlorophenol	B2	3.0E-02	1.2E-01			0.071	NA	NA	0.0E+00	0.0E+00
Phenacetin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenanthrene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenol	D	6.0E-01	NA			2,190	NA	NA	0.0E+00	0.0E+00
Phorate	NA	2.0E-04	NA			0.73	NA	NA	0.0E+00	0.0E+00
Pronamide	NA	7.5E-02	NA			274	NA	NA	0.0E+00	0.0E+00
Pyrene	D	3.0E-02	NA			110	NA	NA	0.0E+00	0.0E+00
Safrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Thionazin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Tributyl phosphate [4]	NA	5.0E-03	NA			18	NA	NA	0.0E+00	0.0E+00
a,a-Dimethylphenethylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethoxy)methane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethyl)ether	NA	NA	1.1E+00			0.00206	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroisopropyl)ether	C	NA	7.0E-02			0.042	NA	NA	0.0E+00	0.0E+00
Bis(2-ethylhexyl)phthalate	B2	2.0E-02	1.4E-02	7/24	160	0.61	8.0E+03	2.2E+00	1.7E-01	1.5E-01
o-Toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Dimethylaminoazobenzene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Phenylenediamine	NA	1.9E-01	NA			694	NA	NA	0.0E+00	0.0E+00
Azinphosmethyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (mg/kg/day)$^{-1}$	Overall Frequency of Detection	CMAX [2] (ug/L)	Screening Level (ug/L)	RiNC	RIC	ERINC	ERIC
Pesticides/PCBs										
4-4'-DDD	B2	NA	2.4E-01			0.035	NA	NA	0.0E+00	0.0E+00
4-4'-DDE	B2	NA	3.4E-01			0.025	NA	NA	0.0E+00	0.0E+00
4-4'-DDT	B2	5.0E-04	3.4E-01			0.025	NA	NA	0.0E+00	0.0E+00
Aldrin	B2	3.0E-05	1.7E+01			0.00050	NA	NA	0.0E+00	0.0E+00
Arochlor 1016	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1221	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1232	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1242	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1248	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1254	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Arochlor 1260	B2	NA	7.7E+00			0.0011	NA	NA	0.0E+00	0.0E+00
Chlordane	B2	6.0E-05	1.3E+00			0.0068	NA	NA	0.0E+00	0.0E+00
Demeton	NA	4.0E-05	NA			0.15	NA	NA	0.0E+00	0.0E+00
Diazinon	NA	9.0E-04	NA			3.3	NA	NA	0.0E+00	0.0E+00
Dieldrin	B2	5.0E-05	1.6E+01			0.00053	NA	NA	0.0E+00	0.0E+00
Disulfoton	NA	4.0E-05	NA			0.15	NA	NA	0.0E+00	0.0E+00
Endosulfan II [7]	NA	6.0E-03	NA			21.9	NA	NA	0.0E+00	0.0E+00
Endosulfan sulfate [8]	NA	NA	NA			21.9	NA	NA	0.0E+00	0.0E+00
Endosulfan I [7]	NA	6.0E-03	NA			21.9	NA	NA	0.0E+00	0.0E+00
Endrin	D	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Endrin aldehyde	NA	NA	NA			1.1	NA	NA	0.0E+00	0.0E+00
Endrin ketone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethion	NA	5.0E-04	NA			1.8	NA	NA	0.0E+00	0.0E+00
Heptachlor	B2	5.0E-04	4.5E+00			0.00039	NA	NA	0.0E+00	0.0E+00
Heptachlor epoxide	B2	1.3E-05	9.1E+00			0.00020	NA	NA	0.0E+00	0.0E+00
Malathion	D	2.0E-02	NA			73	NA	NA	0.0E+00	0.0E+00
Methoxychlor	D	5.0E-03	NA			18	NA	NA	0.0E+00	0.0E+00
Ethyl parathion	C	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl parathion	D	2.5E-04	NA			0.91	NA	NA	0.0E+00	0.0E+00
Toxaphene	B2	NA	1.1E+00			0.0077	NA	NA	0.0E+00	0.0E+00
Alpha-BHC	B2	NA	6.3E+00			0.0014	NA	NA	0.0E+00	0.0E+00
Alpha-Chlordane	NA	6.0E-05	1.3E+00			0.0068	NA	NA	0.0E+00	0.0E+00
Beta-BHC	C	NA	1.8E+00			0.0047	NA	NA	0.0E+00	0.0E+00
Delta-BHC	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Gamma-BHC (Lindane)	NA	3.0E-04	NA			1.1	NA	NA	0.0E+00	0.0E+00
Gamma-Chlordane	NA	6.0E-05	1.3E+00			0.0068	NA	NA	0.0E+00	0.0E+00
Dioxins/Furans [10]										
Dioxins										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.000000057	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.000000057	NA	NA	0.0E+00	0.0E+00
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.0000057	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.0000057	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.000057	NA	NA	0.0E+00	0.0E+00
Furans										
2,3,7,8-Tetrachlorodibenzofuran	B2	NA	1.5E+05			0.00000057	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzofurans	B2	NA	1.5E+05			0.00000057	NA	NA	0.0E+00	0.0E+00
1,2,3,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.0000011	NA	NA	0.0E+00	0.0E+00
2,3,4,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.00000011	NA	NA	0.0E+00	0.0E+00
Pentachlorodibenzofurans	B2	NA	1.5E+05			0.00000011	NA	NA	0.0E+00	0.0E+00
Hexachlorodibenzofurans	B2	NA	1.5E+05			0.00000057	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzofurans	B2	NA	1.5E+05			0.0000057	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzofuran	B2	NA	1.5E+05			0.000057	NA	NA	0.0E+00	0.0E+00
Herbicides										
2,4,5-T	D	1.0E-02	NA			37	NA	NA	0.0E+00	0.0E+00
2,4,5-TP (Silvex)	D	8.0E-03	NA			29	NA	NA	0.0E+00	0.0E+00
2,4-D	D	1.0E-02	NA			37	NA	NA	0.0E+00	0.0E+00
Dinoseb	D	1.0E-03	NA			3.7	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX [2] (ug/L)	Screening Level (ug/L)	RINC	RIC	ERINC	ERIC
Inorganics										
Aluminum	NA	2.9E+00	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Antimony	D	4.0E−04	NA	NA		1.5	NA	NA	0.0E+00	0.0E+00
Arsenic	A	3.0E−04	1.8E+00	NA		0.0049	NA	NA	0.0E+00	0.0E+00
Barium	D	7.0E−02	NA	NA		256	NA	NA	0.0E+00	0.0E+00
Beryllium	B2	5.0E−03	4.3E+00	NA		0.0020	NA	NA	0.0E+00	0.0E+00
Boron	D	9.0E−02	NA	NA		329	NA	NA	0.0E+00	0.0E+00
Cadmium	B1	5.0E−04	6.1E+00	NA		1.8	NA	NA	0.0E+00	0.0E+00
Calcium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Chromium, hexavalent	A	5.0E−03	4.2E+01	NA		18	NA	NA	0.0E+00	0.0E+00
Chromium, trivalent	NA	1.0E+00	NA	NA		3,650	NA	NA	0.0E+00	0.0E+00
Cobalt	NA	6.0E−02	NA	NA		219	NA	NA	0.0E+00	0.0E+00
Copper	D	3.7E−02	NA	NA		136	NA	NA	0.0E+00	0.0E+00
Cyanide	D	2.0E−02	NA	NA		73	NA	NA	0.0E+00	0.0E+00
Iron	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Lead	B2	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Magnesium [4]	NA	9.7E+00	NA	NA		35,405	NA	NA	0.0E+00	0.0E+00
Manganese	D	5.0E−03	NA	NA		18	NA	NA	0.0E+00	0.0E+00
Mercury	D	3.0E−04	NA	NA		1.1	NA	NA	0.0E+00	0.0E+00
Molybdenum	D	5.0E−03	NA	NA		18	NA	NA	0.0E+00	0.0E+00
Nickel	D	2.0E−02	8.4E−01	NA		73	NA	NA	0.0E+00	0.0E+00
Osmium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Selenium	D	5.0E−03	NA	NA		18	NA	NA	0.0E+00	0.0E+00
Silver	D	5.0E−03	NA	NA		18	NA	NA	0.0E+00	0.0E+00
Thallium	NA	7.0E−05	NA	NA		0.26	NA	NA	0.0E+00	0.0E+00
Tin	NA	6.0E−01	NA	NA		2,190	NA	NA	0.0E+00	0.0E+00
Uranium	NA	3.0E−03	NA	NA		11	NA	NA	0.0E+00	0.0E+00
Vanadium	D	7.0E−03	NA	NA		26	NA	NA	0.0E+00	0.0E+00
Zinc	D	3.0E−01	NA	NA		1,095	NA	NA	0.0E+00	0.0E+00
Conventional Parameters										
Ammonia	NA	2.9E−02	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Fluoride	NA	6.0E−02	NA	NA		219	NA	NA	0.0E+00	0.0E+00
Nitrate	NA	1.6E+00	NA	NA		5,840	NA	NA	0.0E+00	0.0E+00
Nitrite	NA	1.0E−01	NA	NA		365	NA	NA	0.0E+00	0.0E+00
Sulfate	NA	NA	NA	NA		250,000	NA	NA	0.0E+00	0.0E+00
Sum of All RI Values							4.7E+04	1.5E+01		

NOTES:

[1] See Table A.4−3 for literature sources from which the toxicity criteria were obtained, unless otherwise noted. Oral cancer slope factors and reference doses were used in the toxicity screen. Inhalation cancer slope factors and reference doses were used in the absence of oral data.
[2] Surface water concentrations presented represent the maximum of filtered and unfiltered concentrations over Type 1, 2, 3, and 4 wells.
[3] Used for the evaluation of future exposure scenarios involving parent isotope in equilibrium with daughters.
[4] Toxicity criteria acquired from *U.S.EPA Environmental Criteria Assessment Office, 1993.*
[5] Screening level for naphthalene used as a surrogate.
[6] Screening level for 2−methylphenol used as a surrogate.
[7] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk−Based Concentrations) used for endosulfan I and II.
[8] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[9] Screening level for endrin used as a surrogate.
[10] Dioxin/furan concentration presented is the 2378−TCDD toxic equivalent concentration.

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TABLE A.III – 8
ORGANIC CONTAMINANT TOXICITY SCREEN
SITE: FERNALD OPERABLE UNIT 5
DATE: 06–18–94
MEDIA: SEDIMENTS
ENTERED: PBM/JKL
CHECKED: JKL
FILE: OU5SDCOC

Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] (Risk/pCi)	Overall Frequency of Detection	CMAX (pCi/g)	Screening Level (pCi/g)	RINC	RIC	ERINC	ERIC
Radionuclides										
Actinium–227	NA	NA	2.8E–10	NA		0.28	NA	NA	0.0E+00	0.0E+00
Actinium–227+7D	NA	NA	3.5E–10	NA		0.0048	NA	NA	0.0E+00	0.0E+00
Cesium–137	NA	NA	2.8E–11	NA		2.8	NA	NA	0.0E+00	0.0E+00
Cesium–137+1D	NA	NA	2.8E–11	NA		0.0021	NA	NA	0.0E+00	0.0E+00
Lead–210	NA	NA	5.1E–10	NA		0.15	NA	NA	0.0E+00	0.0E+00
Lead–210+2D	NA	NA	6.6E–10	NA		0.12	NA	NA	0.0E+00	0.0E+00
Neptunium–237	NA	NA	2.2E–10	NA		0.22	NA	NA	0.0E+00	0.0E+00
Neptunium–237+1D	NA	NA	2.2E–10	NA		0.0094	NA	NA	0.0E+00	0.0E+00
Plutonium–238	NA	NA	2.2E–10	NA		0.36	NA	NA	0.0E+00	0.0E+00
Plutonium–239	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Plutonium–240	NA	NA	2.3E–10	NA		0.34	NA	NA	0.0E+00	0.0E+00
Polonium–210	NA	NA	1.5E–10	NA		0.53	NA	NA	0.0E+00	0.0E+00
Potassium–40	NA	NA	1.1E–11	NA		0.0077	NA	NA	0.0E+00	0.0E+00
Protactinium–231	NA	NA	9.2E–11	NA		0.14	NA	NA	0.0E+00	0.0E+00
Radium–224	NA	NA	3.8E–11	NA		0.17	NA	NA	0.0E+00	0.0E+00
Radium–226	NA	NA	1.2E–10	NA		0.23	NA	NA	0.0E+00	0.0E+00
Radium–226+5D	NA	NA	1.2E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–226+8D [2]	NA	NA	7.8E–10	NA		0.00069	NA	NA	0.0E+00	0.0E+00
Radium–228	NA	NA	1.0E–10	NA		0.79	NA	NA	0.0E+00	0.0E+00
Radium–228+1D	NA	NA	1.0E–10	NA		0.0014	NA	NA	0.0E+00	0.0E+00
Radon–222	NA	NA	1.4E–12	NA		3.3	NA	NA	0.0E+00	0.0E+00
Radon–222+4D	NA	NA	1.7E–12	NA		0.00071	NA	NA	0.0E+00	0.0E+00
Ruthenium–106	NA	NA	9.5E–12	NA		8.4	NA	NA	0.0E+00	0.0E+00
Strontium–90	NA	NA	3.3E–11	NA		2.4	NA	NA	0.0E+00	0.0E+00
Strontium–90+1D	NA	NA	3.8E–11	NA		2.2	NA	NA	0.0E+00	0.0E+00
Technetium–99	NA	NA	1.3E–12	NA		81	NA	NA	0.0E+00	0.0E+00
Thorium–228	NA	NA	1.1E–11	NA		3.7	NA	NA	0.0E+00	0.0E+00
Thorium–228+7D	NA	NA	5.5E–11	NA		0.00074	NA	NA	0.0E+00	0.0E+00
Thorium–230	NA	NA	1.3E–11	NA		5.7	NA	NA	0.0E+00	0.0E+00
Thorium–232	NA	NA	1.2E–11	NA		6.4	NA	NA	0.0E+00	0.0E+00
Thorium–232+10D [2]	NA	NA	1.7E–10	NA		0.00049	NA	NA	0.0E+00	0.0E+00
Thorium–234	NA	NA	4.0E–12	NA		1.1	NA	NA	0.0E+00	0.0E+00
Uranium–233	NA	NA	1.6E–11	NA		4.7	NA	NA	0.0E+00	0.0E+00
Uranium–234	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–235	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–235+1D	NA	NA	1.6E–11	NA		0.017	NA	NA	0.0E+00	0.0E+00
Uranium–236	NA	NA	1.5E–11	NA		5.1	NA	NA	0.0E+00	0.0E+00
Uranium–238	NA	NA	1.6E–11	NA		4.8	NA	NA	0.0E+00	0.0E+00
Uranium–238+2D	NA	NA	2.8E–11	NA		0.11	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	C	3.0E-02	2.6E-02			2,457	NA	NA	0.0E+00	0.0E+00
1,1,1-Trichloroethane	D	2.9E-01	NA			NA	NA	NA	0.0E+00	0.0E+00
1,1,2,2-Tetrachloroethane	C	NA	2.0E-01			319	NA	NA	0.0E+00	0.0E+00
1,1,2-Trichloroethane	C	4.0E-03	5.7E-02			1,121	NA	NA	0.0E+00	0.0E+00
1,1-Dichloroethane	C	1.0E-01	NA	1/38	3	NA	3.0E+01	NA	8.9E-05	0.0E+00
1,1-Dichloroethene	C	9.0E-03	6.0E-01			108	NA	NA	0.0E+00	0.0E+00
1,2,3-Trichloropropane	B2	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
1,2-Dibromo-3-chloropropane	B2	5.7E-05	1.4E+00			46	NA	NA	0.0E+00	0.0E+00
1,2-Dibromoethane	B2	5.7E-05	8.5E+01			0.75	NA	NA	0.0E+00	0.0E+00
1,2-Dichloroethane	B2	NA	9.1E-02			702	NA	NA	0.0E+00	0.0E+00
cis-1,2-Dichloroethene	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
1,4-Dioxane	B2	NA	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
2-Butanone	D	6.0E-01	NA			16,425,000	NA	NA	0.0E+00	0.0E+00
2-Chloro-1,3-butadiene	NA	2.0E-03	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloroethylvinyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Hexanone	NA	4.0E-02	NA	1/34	11	1,095,000	2.8E+02	NA	6.4E-04	0.0E+00
2-Picoline	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Chloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methyl-2-pentanone	NA	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
Acetone	D	1.0E-01	NA	4/38	180	2,737,500	1.8E+03	NA	4.2E-03	0.0E+00
Acetonitrile	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Acrolein	C	5.7E-06	NA			NA	NA	NA	0.0E+00	0.0E+00
Acrylonitrile	B1	5.7E-04	5.4E-01			118	NA	NA	0.0E+00	0.0E+00
Benzene	A	NA	2.9E-02			2,203	NA	NA	0.0E+00	0.0E+00
Bromochloromethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bromodichloromethane	B2	2.0E-02	6.2E-02			1,030	NA	NA	0.0E+00	0.0E+00
Bromoform	B2	2.0E-02	7.9E-03			8,085	NA	NA	0.0E+00	0.0E+00
Bromomethane	D	1.4E-03	NA			38,325	NA	NA	0.0E+00	0.0E+00
Carbon tetrachloride	B2	7.0E-04	1.3E-01			491	NA	NA	0.0E+00	0.0E+00
Carbon disulfide	NA	1.0E-01	NA	1/38	2	2,737,500	2.0E+01	NA	4.6E-05	0.0E+00
Chlorobenzene	D	2.0E-02	NA	1/35	2	547,500	1.0E+02	NA	2.3E-04	0.0E+00
Chloroethane	NA	2.9E+00	NA			NA	NA	NA	0.0E+00	0.0E+00
Chloroform	B2	1.0E-02	6.1E-03			10,471	NA	NA	0.0E+00	0.0E+00
Chloromethane	NA	NA	1.3E-02			4,913	NA	NA	0.0E+00	0.0E+00
Cumene	NA	4.0E-02	NA			1,095,000	NA	NA	0.0E+00	0.0E+00
Dibromochloromethane	C	2.0E-02	8.4E-02			760	NA	NA	0.0E+00	0.0E+00
Dibromomethane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,2-Dichloropropane	B2	1.1E-03	6.8E-02			NA	NA	NA	0.0E+00	0.0E+00
Dichlorodifluoromethane	D	2.0E-01	NA			5,475,000	NA	NA	0.0E+00	0.0E+00
Ethyl cyanide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethyl methacrylate	NA	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
Methyl methacrylate	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
Ethylbenzene	D	1.0E-01	NA	3/35	5	2,737,500	5.0E+01	NA	1.2E-04	0.0E+00
Iodomethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isobutyl alcohol	NA	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Methacrylonitrile	NA	2.0E-04	NA			NA	NA	NA	0.0E+00	0.0E+00
Methylene chloride	B2	6.0E-02	7.5E-03	6/38	7	8,517	1.2E+02	5.3E-02	2.7E-04	1.2E-06
Pentachloroethane	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pyridine	NA	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00
Styrene	C	2.0E-01	3.0E-02			2,129	NA	NA	0.0E+00	0.0E+00
Tetrachloroethene [3]	NA	1.0E-02	5.2E-02			1,228	NA	NA	0.0E+00	0.0E+00
Toluene	D	2.0E-01	NA	8/35	110	5,475,000	5.5E+02	NA	1.3E-03	0.0E+00
Total Xylenes	D	2.0E+00	NA	1/35	4	54,750,000	2.0E+00	NA	4.6E-06	0.0E+00
Trichloroethene	NA	6.0E-03	1.1E-02			5,807	NA	NA	0.0E+00	0.0E+00
Trichlorofluoromethane	D	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Vinyl acetate	NA	1.0E+00	NA			27,375,000	NA	NA	0.0E+00	0.0E+00
Vinyl chloride	A	NA	1.9E+00			34	NA	NA	0.0E+00	0.0E+00
cis-1,3-Dichloropropene	NA	NA	1.3E-01			491	NA	NA	0.0E+00	0.0E+00
trans-1,2-Dichloroethene	D	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
trans-1,3-Dichloropropene	B2	NA	1.8E-01			355	NA	NA	0.0E+00	0.0E+00
trans-1,4-Dichloro-2-butene	B2	NA	9.3E+00			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds										
1,2,4,5-Tetrachlorobenzene	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
1,2,4-Trichlorobenzene	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
1,2-Dichlorobenzene	D	9.0E-02	NA			2,463,750	NA	NA	0.0E+00	0.0E+00
1,3,5-Trinitrobenzene	NA	5.0E-05	NA			1,369	NA	NA	0.0E+00	0.0E+00
1,3-Dichlorobenzene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1,3-Dinitrobenzene	D	1.0E-04	NA			2,738	NA	NA	0.0E+00	0.0E+00
1,4-Dichlorobenzene	B2	2.3E-01	2.4E-02			2,661	NA	NA	0.0E+00	0.0E+00
1,4-Naphthaquinone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Hexadecyne	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
1-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,3,4,6-Tetrachlorophenol	NA	3.0E-02	NA			821,250	NA	NA	0.0E+00	0.0E+00
2,4,5-Trichlorophenol	NA	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
2,4,6-Trichlorophenol	B2	NA	1.1E-02			5,607	NA	NA	0.0E+00	0.0E+00
2,4-Dichlorophenol	D	3.0E-03	NA			82,125	NA	NA	0.0E+00	0.0E+00
2,4-Dimethylphenol	NA	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrophenol	NA	2.0E-03	NA			54,750	NA	NA	0.0E+00	0.0E+00
2,4-Dinitrotoluene	B2	2.0E-03	6.8E-01			94	NA	NA	0.0E+00	0.0E+00
2,6-Dichlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2,6-Dinitrotoluene	B2	1.0E-03	6.8E-01			94	NA	NA	0.0E+00	0.0E+00
2-Acetylaminofluorene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Benzyl-4-chlorophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Chloronaphthalene	NA	8.0E-02	NA			2,190,000	NA	NA	0.0E+00	0.0E+00
2-Chlorophenol	D	5.0E-03	NA			136,875	NA	NA	0.0E+00	0.0E+00
2-Methylnaphthalene [4]	NA	NA	NA	1/34	56	1,095,000	NA	NA	0.0E+00	0.0E+00
2-Methylphenol	C	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
2-Naphthylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitroaniline	NA	6.0E-05	NA			NA	NA	NA	0.0E+00	0.0E+00
2-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3,3'-Dichlorobenzidine	B2	NA	4.5E-01			142	NA	NA	0.0E+00	0.0E+00
3,3'-Dimethylbenzidine	B2	NA	9.2E+00			6.9	NA	NA	0.0E+00	0.0E+00
3-Methylcholanthrene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
3-Methylphenol	C	5.0E-02	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
3-Nitrophenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4,6-Dinitro-2-methylphenol	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Aminobiphenyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Bromophenyl phenyl ether	D	5.8E-02	NA			1,587,750	NA	NA	0.0E+00	0.0E+00
4-Chloro-3-methylphenol [5]	NA	NA	NA			1,368,750	NA	NA	0.0E+00	0.0E+00
4-Chloroaniline	NA	4.0E-03	NA			109,500	NA	NA	0.0E+00	0.0E+00
4-Chlorophenyl phenyl ether	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
4-Methylphenol	C	5.0E-02	NA	3/34	310	136,875	6.2E+03	NA	1.4E-02	0.0E+00
4-Nitroaniline	NA	3.0E-03	NA			82,125	NA	NA	0.0E+00	0.0E+00
4-Nitrophenol	D	6.2E-02	NA			1,697,250	NA	NA	0.0E+00	0.0E+00
4-Nitroquinoline-1-oxide	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
5-Nitro-o-toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
7,12-Dimethylbenz(a)anthracene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acenaphthene	NA	6.0E-02	NA	2/34	120	1,642,500	2.0E+03	NA	4.6E-03	0.0E+00
Acenaphthylene	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Acetophenone	D	1.0E-01	NA			2,737,500	NA	NA	0.0E+00	0.0E+00
Aniline	B2	2.9E-04	5.7E-03			11,208	NA	NA	0.0E+00	0.0E+00
Anthracene	D	3.0E-01	NA	3/34	470	8,212,500	1.6E+03	NA	3.6E-03	0.0E+00
Aramite	B2	5.0E-02	2.5E-02			2,555	NA	NA	0.0E+00	0.0E+00
Benzo(a)anthracene	B2	NA	1.1E+00	17/34	2600	58	NA	2.9E+03	0.0E+00	6.4E-02
Benzo(a)pyrene	B2	NA	7.3E+00	12/33	2100	8.8	NA	1.5E+04	0.0E+00	3.4E-01
Benzo(b)fluoranthene	B2	NA	9.0E-01	18/33	2700	71	NA	2.4E+03	0.0E+00	5.4E-02
Benzo(g,h,i)perylene	D	NA	NA	7/33	2600	NA	NA	NA	0.0E+00	0.0E+00
Benzo(k)fluoranthene	D	NA	3.8E-01	19/33	2100	168	NA	8.0E+02	0.0E+00	1.8E-02
Benzoic Acid	NA	4.0E+00	NA	7/22	210	109,500,000	5.3E+01	NA	1.2E-04	0.0E+00
Benzyl alcohol	NA	3.0E-01	NA			8,212,500	NA	NA	0.0E+00	0.0E+00
Butyl benzyl phthalate	C	2.0E-01	NA			5,475,000	NA	NA	0.0E+00	0.0E+00
Carbazole	B2	NA	2.0E-02	1/18	120	3,194	NA	2.4E+00	0.0E+00	5.4E-05
Chlorobenzilate	NA	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Chrysene	B2	NA	3.2E-02	20/34	2700	1,996	NA	8.6E+01	0.0E+00	1.9E-03
Di-n-butylphthalate	D	1.0E-01	NA	6/34	550	2,737,500	5.5E+03	NA	1.3E-02	0.0E+00
Di-n-octylphthalate	NA	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Dialiate	B2	NA	6.1E-02			1,047	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Semivolatile Organic Compounds (Con't.)										
Dibenzo(a,h)anthracene	B2	NA	8.1E+00	2/33	580	7.9	NA	4.7E+03	0.0E+00	1.1E-01
Dibenzofuran	D	4.0E-03	NA	1/34	63	109,500	1.6E+04	NA	3.8E-02	0.0E+00
Diethyl phthalate	D	8.0E-01	NA			21,900,000	NA	NA	0.0E+00	0.0E+00
Dimethoate	NA	2.0E-04	NA			5,475	NA	NA	0.0E+00	0.0E+00
Dimethyl phthalate	D	1.0E+01	NA			273,750,000	NA	NA	0.0E+00	0.0E+00
Diphenylamine	D	2.5E-02	NA			684,375	NA	NA	0.0E+00	0.0E+00
Ethyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Famphur	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Fluoranthene	D	4.0E-02	NA	23/34	5500	1,095,000	1.4E+05	NA	3.2E-01	0.0E+00
Fluorene	D	4.0E-02	NA	1/34	130	1,095,000	3.3E+03	NA	7.5E-03	0.0E+00
Hexachlorobenzene	B2	8.0E-04	1.6E+00			40	NA	NA	0.0E+00	0.0E+00
Hexachlorobutadiene	C	NA	7.8E-02			819	NA	NA	0.0E+00	0.0E+00
Hexachlorocyclopentadiene	D	7.0E-03	NA			191,625	NA	NA	0.0E+00	0.0E+00
Hexachloroethane	C	1.0E-03	1.4E-02			4,563	NA	NA	0.0E+00	0.0E+00
Hexachlorophene	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Hexachloropropene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	B2	NA	2.0E+00	8/33	2300	32	NA	4.6E+03	0.0E+00	1.0E-01
Isodrin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Isophorone	C	2.0E-01	9.5E-04			67,237	NA	NA	0.0E+00	0.0E+00
Isosafrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Kepone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methapyrilene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl methanesulfonate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-propylamine	B2	NA	7.0E+00			9.1	NA	NA	0.0E+00	0.0E+00
N-Nitroso-di-n-butylamine	B2	NA	5.4E+00			12	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiethylamine	B2	NA	1.5E+02			0.43	NA	NA	0.0E+00	0.0E+00
N-Nitrosodimethylamine	B2	NA	5.1E+01			1.3	NA	NA	0.0E+00	0.0E+00
N-Nitrosodiphenylamine	B2	NA	4.9E-03			13,038	NA	NA	0.0E+00	0.0E+00
N-Nitrosomethylethylamine	B2	NA	2.2E+01			2.9	NA	NA	0.0E+00	0.0E+00
N-Nitrosomorpholine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopiperidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
N-Nitrosopyrrolidine	B2	NA	2.1E+00			30	NA	NA	0.0E+00	0.0E+00
Naphthalene	D	4.0E-02	NA	1/34	51	1,095,000	1.3E+03	NA	2.9E-03	0.0E+00
Nitrobenzene	D	5.0E-04	NA			13,688	NA	NA	0.0E+00	0.0E+00
o,o,o-Triethylphosphorothioate	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Pentachlorobenzene	D	8.0E-04	NA			21,900	NA	NA	0.0E+00	0.0E+00
Pentachloronitrobenzene	C	3.0E-03	2.6E-01			246	NA	NA	0.0E+00	0.0E+00
Pentachlorophenol	B2	3.0E-02	1.2E-01			532	NA	NA	0.0E+00	0.0E+00
Phenacetin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Phenanthrene	D	NA	NA	19/34	2200	NA	NA	NA	0.0E+00	0.0E+00
Phenol	D	6.0E-01	NA	1/34	56	16,425,000	9.3E+01	NA	2.2E-04	0.0E+00
Phorate	NA	2.0E-04	NA			5,475	NA	NA	0.0E+00	0.0E+00
Pronamide	NA	7.5E-02	NA			2,053,125	NA	NA	0.0E+00	0.0E+00
Pyrene	D	3.0E-02	NA	23/34	4400	821,250	1.5E+05	NA	3.4E-01	0.0E+00
Safrole	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Thionazin	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Tributyl phosphate [3]	NA	5.0E-03	NA			136,875	NA	NA	0.0E+00	0.0E+00
a,a-Dimethylphenethylamine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethoxy)methane	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroethyl)ether	NA	NA	1.1E+00			NA	NA	NA	0.0E+00	0.0E+00
Bis(2-Chloroisopropyl)ether	C	NA	7.0E-02			913	NA	NA	0.0E+00	0.0E+00
Bis(2-ethylhexyl)phthalate	B2	2.0E-02	1.4E-02	9/34	2200	4,563	1.1E+05	3.1E+01	2.5E-01	6.9E-04
o-Toluidine	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Dimethylaminoazobenzene	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
p-Phenylenediamine	NA	1.9E-01	NA			5,201,250	NA	NA	0.0E+00	0.0E+00
Azinphosmethyl	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Pesticides/PCBs										
4-4'-DDD	B2	NA	2.4E-01			268	NA	NA	0.0E+00	0.0E+00
4-4'-DDE	B2	NA	3.4E-01			188	NA	NA	0.0E+00	0.0E+00
4-4'-DDT	B2	5.0E-04	3.4E-01			188	NA	NA	0.0E+00	0.0E+00
Aldrin	B2	3.0E-05	1.7E+01			3.8	NA	NA	0.0E+00	0.0E+00
Arochlor 1016	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1221	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1232	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1242	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1248	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Arochlor 1254	B2	NA	7.7E+00	2/14	1800	8.3	NA	1.4E+04	0.0E+00	3.1E-01
Arochlor 1260	B2	NA	7.7E+00			8.3	NA	NA	0.0E+00	0.0E+00
Chlordane	B2	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Demeton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Diazinon	NA	9.0E-04	NA			24,638	NA	NA	0.0E+00	0.0E+00
Dieldrin	B2	5.0E-05	1.6E+01			4.0	NA	NA	0.0E+00	0.0E+00
Disulfoton	NA	4.0E-05	NA			1,095	NA	NA	0.0E+00	0.0E+00
Endosulfan II [6]	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan sulfate [7]	NA	NA	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endosulfan I [6]	NA	6.0E-03	NA			164,250	NA	NA	0.0E+00	0.0E+00
Endrin	D	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Endrin aldehyde	NA	NA	NA			8,213	NA	NA	0.0E+00	0.0E+00
Endrin ketone	NA	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Ethion	NA	5.0E-04	NA			13,688	NA	NA	0.0E+00	0.0E+00
Heptachlor	B2	5.0E-04	4.5E+00			14	NA	NA	0.0E+00	0.0E+00
Heptachlor epoxide	B2	1.3E-05	9.1E+00			7.0	NA	NA	0.0E+00	0.0E+00
Malathion	D	2.0E-02	NA			547,500	NA	NA	0.0E+00	0.0E+00
Methoxychlor	D	5.0E-03	NA			136,875	NA	NA	0.0E+00	0.0E+00
Ethyl parathion	C	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Methyl parathion	D	2.5E-04	NA			6,844	NA	NA	0.0E+00	0.0E+00
Toxaphene	B2	NA	1.1E+00			58	NA	NA	0.0E+00	0.0E+00
Alpha-BHC	B2	NA	6.3E+00			10	NA	NA	0.0E+00	0.0E+00
Alpha-Chlordane	NA	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Beta-BHC	C	NA	1.8E+00			35	NA	NA	0.0E+00	0.0E+00
Delta-BHC	D	NA	NA			NA	NA	NA	0.0E+00	0.0E+00
Gamma-BHC (Lindane)	NA	3.0E-04	NA			8,213	NA	NA	0.0E+00	0.0E+00
Gamma-Chlordane	NA	6.0E-05	1.3E+00			49	NA	NA	0.0E+00	0.0E+00
Dioxins/Furans [9]										
Dioxins										
2,3,7,8-Tetrachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.00043	NA	NA	0.0E+00	0.0E+00
1,2,3,4,6,7,8-heptachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzo-p-dioxins	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzo-p-dioxin	B2	NA	1.5E+05			0.43	NA	NA	0.0E+00	0.0E+00
Furans										
2,3,7,8-Tetrachlorodibenzofuran	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Tetrachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
1,2,3,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.0085	NA	NA	0.0E+00	0.0E+00
2,3,4,7,8-pentachlorodibenzofuran	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Pentachlorodibenzofurans	B2	NA	1.5E+05			0.00085	NA	NA	0.0E+00	0.0E+00
Hexachlorodibenzofurans	B2	NA	1.5E+05			0.0043	NA	NA	0.0E+00	0.0E+00
Heptachlorodibenzofurans	B2	NA	1.5E+05			0.043	NA	NA	0.0E+00	0.0E+00
Octachlorodibenzofuran	B2	NA	1.5E+05			0.43	NA	NA	0.0E+00	0.0E+00
Herbicides										
2,4,5-T	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
2,4,5-TP (Silvex)	D	8.0E-03	NA			219,000	NA	NA	0.0E+00	0.0E+00
2,4-D	D	1.0E-02	NA			273,750	NA	NA	0.0E+00	0.0E+00
Dinoseb	D	1.0E-03	NA			27,375	NA	NA	0.0E+00	0.0E+00

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Radionuclide/Chemical	U.S. EPA Weight of Evidence	Reference Dose [1] (mg/kg/day)	Slope Factor [1] $(mg/kg/day)^{-1}$	Overall Frequency of Detection	CMAX (ug/Kg)	Screening Level (ug/kg)	RINC	RIC	ERINC	ERIC
Inorganics										
Aluminum	NA	2.9E+00	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Antimony	D	4.0E-04	NA	NA		10,950	NA	NA	0.0E+00	0.0E+00
Arsenic	A	3.0E-04	1.8E+00	NA		37	NA	NA	0.0E+00	0.0E+00
Barium	D	7.0E-02	NA	NA		1,916,250	NA	NA	0.0E+00	0.0E+00
Beryllium	B2	5.0E-03	4.3E+00	NA		15	NA	NA	0.0E+00	0.0E+00
Boron	D	9.0E-02	NA	NA		2,463,750	NA	NA	0.0E+00	0.0E+00
Cadmium	B1	5.0E-04	6.1E+00	NA		13,688	NA	NA	0.0E+00	0.0E+00
Calcium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Chromium, hexavalent	A	5.0E-03	4.2E+01	NA		136,875	NA	NA	0.0E+00	0.0E+00
Chromium, trivalent	NA	1.0E+00	NA	NA		27,375,000	NA	NA	0.0E+00	0.0E+00
Cobalt	NA	6.0E-02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Copper	D	3.7E-02	NA	NA		1,018,415	NA	NA	0.0E+00	0.0E+00
Cyanide	D	2.0E-02	NA	NA		547,500	NA	NA	0.0E+00	0.0E+00
Iron	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Lead	B2	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Magnesium [3]	NA	9.7E+00	NA	NA		265,537,500	NA	NA	0.0E+00	0.0E+00
Manganese	D	5.0E-03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Mercury	D	3.0E-04	NA	NA		8,213	NA	NA	0.0E+00	0.0E+00
Molybdenum	D	5.0E-03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Nickel	D	2.0E-02	8.4E-01	NA		547,500	NA	NA	0.0E+00	0.0E+00
Osmium	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Selenium	D	5.0E-03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Silver	D	5.0E-03	NA	NA		136,875	NA	NA	0.0E+00	0.0E+00
Thallium	NA	7.0E-05	NA	NA		1,916	NA	NA	0.0E+00	0.0E+00
Tin	NA	6.0E-01	NA	NA		16,425,000	NA	NA	0.0E+00	0.0E+00
Uranium	NA	3.0E-03	NA	NA		82,125	NA	NA	0.0E+00	0.0E+00
Vanadium	D	7.0E-03	NA	NA		191,625	NA	NA	0.0E+00	0.0E+00
Zinc	D	3.0E-01	NA	NA		8,212,500	NA	NA	0.0E+00	0.0E+00
Conventional Parameters										
Ammonia	NA	2.9E-02	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Fluoride	NA	6.0E-02	NA	NA		1,642,500	NA	NA	0.0E+00	0.0E+00
Nitrate	NA	1.6E+00	NA	NA		43,800,000	NA	NA	0.0E+00	0.0E+00
Nitrite	NA	1.0E-01	NA	NA		2,737,500	NA	NA	0.0E+00	0.0E+00
Sulfate	NA	NA	NA	NA		NA	NA	NA	0.0E+00	0.0E+00
Sum of All RI Values							4.3E+05	4.5E+04		

NOTES:

[1] See Table A.4-3 for literature sources from which the toxicity criteria were obtained, unless otherwise noted. Oral cancer slope factors and reference doses were used in the toxicity screen. Inhalation cancer slope factors and reference doses were used in the absence of oral data.
[2] Used for the evaluation of future exposure scenarios involving parent isotope in equilibrium with daughters.
[3] Toxicity criteria acquired from U.S.EPA Environmental Criteria Assessment Office, 1993.
[4] Screening level for naphthalene used as a surrogate.
[5] Screening level for 2-methylphenol used as a surrogate.
[6] Reference dose for endosulfan (U.S. EPA Region III Tables for Risk-Based Concentrations) used for endosulfan I and II.
[7] Screening level for endosulfan I and II used as a surrogate for endosulfan sulfate.
[8] Screening level for endrin used as a surrogate.
[9] Dioxin/furan concentration presented is the 2378-TCDD toxic equivalent concentration.

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TABLE A. IV - 1
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
ADMINISTRATION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	20/20	3.30	125	Log	23.2	41.2(b)	na	Y	na	Y	Y	a
URANIUM-234	20/20	3.70	50.8	Log	17.2	27.9(b)	na	Y	na	Y	Y	a
THORIUM-230	21/21	1.00	9.92	Log	2.81	3.67(b)	na	Y	na	Y	Y	a
RADIUM-226	19/19	0.300	2.60	Und	1.13	2.60(d)	na	Y	na	Y	Y	a
URANIUM-235/236	12/20	0.200	3.48	Log	1.44	1.88(b)	na	Y	na	Y	Y	a
THORIUM-232	20/21	0.400	1.70	Log	0.860	0.980(b)	na	Y*	na	Y	N	b, d
RADIUM-228	16/19	0.700	1.30	Norm	0.967	0.979(a)	na	Y*	na	Y	N	b, d
THORIUM-228	20/20	0.500	1.50	Log	0.878	0.984(b)	na	Y*	na	Y	N	b, d
NEPTUNIUM-237	0/18											
PLUTONIUM-239/240	0/17											
PLUTONIUM-238	2/17	0.207	0.649	Und	0.428	0.649(d)	na	na	na	na	na	f
STRONTIUM-90	2/16	1.10	1.70	Und	1.40	1.70(d)	na	na	N	Y	Y	a
TECHNETIUM-99	0/14											
RUTHENIUM-106	0/16											
CESIUM-137	11/16	0.228	0.700	Norm	0.449	0.428(a)	na	N	na	N	N	b
Metals (mg/kg)												
ALUMINUM	12/12	4220	19800	Log	9900	13600(b)	na	N	na	Y	Y	a
ANTIMONY	0/2											
ARSENIC	3/3	6.40	11.6	Und	8.67	11.6(d)	na	na	na	Y	Y	a
BARIUM	12/12	39.2	183	Norm	106	132(a)	na	Y	na	Y	Y	a
BERYLLIUM	7/12	0.380	1.80	Log	0.791	0.962(b)	na	na	Y	Y	Y	a
CADMIUM	1/12	1.10	1.10	Und	1.10	1.10(d)	na	na	N	Y	Y	a
CHROMIUM	12/12	6.90	24.3	Norm	14.8	17.5(a)	na	Y	na	Y	Y	a
COBALT	12/12	3.40	12.5	Log	6.71	8.91(b)	na	Y*	na	N	N	b, d
COPPER	12/12	12.4	184	Log	47.0	91.0(b)	na	Y	na	Y	Y	a
CYANIDE	1/12	0.130	0.130	Und	0.130	0.130(d)	na	na	Y*	N	N	b, d
LEAD	12/12	5.10	543	Und	61.7	543(d)	na	Y	na	Y	Y	a
MAGNESIUM	12/12	11300	37000	Norm	23400	27700(a)	na	Y	na	Y	Y	a
MANGANESE	12/12	293	1720	Log	723	1150(b)	N	na	na	Y	Y	a
MERCURY	1/12	0.170	0.170	Und	0.170	0.170(d)	na	na	N	Y	N	b, d
MOLYBDENUM	7/12	3.80	6.90	Und	5.83	6.90(d)	na	na	na	na	Y	c Background - 0/30

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TABLE A. IV - 1
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
ADMINISTRATION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	12/12	9.70	37.9	Log	18.2	23.8(b)	na	Y	na	Y	Y	a
SELENIUM	2/10	0.410	0.420	Und	0.415	0.420(d)	na	na	Y*	N	N	b, d
SILVER	8/12	2.90	7.90	Norm	5.06	4.91(a)	na	na	na	na	Y	c Background - 0/30
THALLIUM	2/12	0.300	0.370	Und	0.335	0.370(d)	na	na	N	Y	N	b, d
THORIUM, TOTA L	6/7	4.75	9.71	Und	7.39	9.71(d)	na	na	na	na	na	f
URANIUM, TOTAL	19/19	17.0	297	Log	72.3	111(b)	na	Y	na	Y	Y	a
VANADIUM	12/12	11.2	35.4	Norm	22.5	26.3(a)	na	N	na	Y	Y	a
ZINC	12/12	38.5	218	Log	91.8	130(b)	na	Y	na	Y	Y	a
Volatile Organics (ug/kg)												
METHYLENE CHLORIDE	1/12	13.0	13.0	Und	13.0	13.0(d)	na	na	na	na	na	e
TETRACHLOROETHENE	1/12	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	3/6	37.0	1800	Und	646	1800(d)	na	na	na	na	na	e
BENZO(A)PYRENE	2/6	93.0	1600	Und	846	1600(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	3/6	41.0	2000	Und	717	2000(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	3/6	48.0	1500	Und	546	1500(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	3/6	66.0	120	Und	95.3	120(d)	na	na	na	na	na	e
CHRYSENE	3/6	48.0	2200	Und	799	2200(d)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1/6	400	400	Und	400	440(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	2/6	79.0	1300	Und	690	1300(d)	na	na	na	na	na	e
PHENANTHRENE	3/6	260	2800	Und	1150	2800(d)	na	na	na	na	na	e
PYRENE	3/6	140	3400	Und	1260	3400(d)	na	na	na	na	na	e
Pesticides/PCBs (ug/kg)												
AROCLOR-1254	2/12	54.0	200	Und	127	200(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 2
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
MAIN PRODUCTION AREA/PROCESS AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	134/134	0.300	19100	Log	409	463(b)	na	Y	na	na	Y	a	
URANIUM-234	134/134	0.300	18100	Log	391	452(b)	na	Y	na	na	Y	a	
THORIUM-230	128/136	0.200	7900	Und	78.8	102(c)	na	Y	na	na	Y	a	
RADIUM-226	100/105	0.300	18.8	Log	1.67	1.68(b)	na	Y	na	na	Y	a	
URANIUM-235/236	104/134	0.200	1020	Und	30.9	63.4(c)	na	Y	na	na	Y	a	
THORIUM-232	114/136	0.300	283	Und	9.40	35.6(c)	na	Y	na	na	Y	a	
RADIUM-228	83/107	0.600	558	Und	27.0	49.8(c)	na	Y	na	na	Y	a	
THORIUM-228	110/123	0.200	315	Und	8.58	26.1(c)	na	Y	na	na	Y	a	
NEPTUNIUM-237	3/97	0 710	2.63	Und	1.35	0.710(e)	na	na	na	na	na	f	
PLUTONIUM-239/240	9/108	0.634	12.9	Und	4.75	1.65(c)	na	na	na	na	na	f	
PLUTONIUM-238	14/108	0.242	151	Und	28.4	6.10(c)	na	na	na	na	na	f	
STRONTIUM-90	37/96	0.510	26.3	Und	2.40	3.70(c)	na	na	Y	na	Y	a	
TECHNETIUM-99	28/100	1.10	210	Und	13.4	5.10(c)	na	na	na	na	Y	c	Background - 0/30
RUTHENIUM-106	0/88												
CESIUM-137	35/87	0.227	2.90	Und	0.745	1.20(c)	na	Y	na	na	Y	a	
Metals (mg/kg)													
ALUMINUM	50/50	1550	19400	Norm	10400	11400(a)	na	Y	na	na	Y	a	
ANTIMONY	1/24	21.2	21.2	Und	21.2	21.2(d)	na	na	na	na	Y	c	Background - 0/22
ARSENIC	48/48	0.770	17.3	Und	6.34	12.2(c)	na	Y	na	na	Y	a	
BARIUM	50/50	18.7	587	Und	112	336(c)	na	Y	na	na	Y	a	
BERYLLIUM	42/50	0.490	5.70	Log	1.40	1.49(b)	na	na	Y	na	Y	a	
CADMIUM	29/45	1.10	6.90	Und	3.64	6.20(c)	na	na	Y	na	Y	a	
CHROMIUM	50/50	3.60	75.5	Und	19.2	30.0(c)	na	Y	na	na	Y	a	
COBALT	47/50	3.80	30.0	Norm	12.0	12.6(a)	na	Y	na	na	Y	a	
COPPER	45/50	5.00	69.4	Und	23.1	38.5(c)	na	Y	na	na	Y	a	
CYANIDE	7/35	0.150	1.228	Und	0.505	0.690(c)	na	na	Y	na	Y	a	
LEAD	49/49	3.70	440	Log	34.3	39.1(b)	na	Y	na	na	Y	a	
MANGANESE	50/50	262	1780	Log	663	736(b)	N	na	na	na	N	a	
MERCURY	9/48	0.0600	2.10	Und	0.649	1.10(c)	na	na	Y	na	Y	a	
MOLYBDENUM	16/46	2.60	13.1	Und	5.25	10.0(c)	na	na	na	na	Y	c	Background - 0/30
NICKEL	43/50	5.40	50.0	Norm	26.0	26.4(a)	na	Y	na	na	Y	a	

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TABLE A. IV - 2
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
MAIN PRODUCTION AREA/PROCESS AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	11/44	0.260	3.70	Und	0.953	1.15(c)	na	na	Y	na	Y	a
SILICON	19/22	65.0	1920	Log	516	842(b)	na	Y*	na	Y	N	b, d
SILVER	26/48	1.10	17.2	Norm	6.50	4.67(a)	na	na	na	na	Y	c Background - 0/30
THALLIUM	7/50	0.230	0.490	Und	0.377	0.460(c)	na	na	N	na	N	b
THORIUM, TOTAL	74/86	2.04	766	Und	31.2	85.7(c)	na	na	na	na	na	f
URANIUM, TOTAL	153/153	2.10	43100	Log	994	1030(b)	na	Y	na	na	Y	a
VANADIUM	50/50	11.1	42.6	Log	25.6	27.5(b)	na	Y	na	na	Y	a
ZINC	45/47	22.9	285	Und	72.1	153(c)	na	Y	na	na	Y	a
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	2/42	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
BENZENE	1/42	5.00	5.00	Und	5.00	5.00(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	10/42	2.00	100	Und	17.3	20.0(c)	na	na	na	na	na	e
TETRACHLOROETHENE	7/41	1.00	52.0	Und	14.0	12.0(c)	na	na	na	na	na	e
TRICHLOROETHENE	7/42	2.00	64.0	Und	23.7	34.0(c)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	17/41	1.00	6300	Und	1000	1600(c)	na	na	na	na	na	e
BENZO(A)PYRENE	16/41	1.00	6000	Und	969	1100(c)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	15/41	53.0	6100	Und	1110	1500(c)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	15/41	63	5000	Und	874	1200(c)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	19/41	41.0	770	Und	144	260(c)	na	na	na	na	na	e
CHRYSENE	17/41	1.00	7800	Und	1260	1600(c)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	10/41	46.0	1500	Und	408	390(c)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	14/41	49.0	4800	Und	820	1000(c)	na	na	na	na	na	e
PHENANTHRENE	17/41	1.00	13000	Und	1810	3600(c)	na	na	na	na	na	e
PYRENE	21/41	1.00	15000	Und	1680	3000(c)	na	na	na	na	na	e
Pesticides/PCBs (ug/kg)												
AROCLOR-1254	14/38	40.0	14000	Und	1717	4000(c)	na	na	na	na	na	e
AROCLOR-1260	2/38	340	1000	Und	670	900(c)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 3
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF PRODUCTION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist.	Average of Positive Hits	Representative Concentration	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No	Comment
Radionuclides (pCi/g)												
URANIUM-238	66/66	1.20	7180	Und	193	242(c)	na	Y	na	na	Y	a
URANIUM, TOTAL	68/68	4.30	21400	Log	595	618(b)	na	Y	na	na	Y	a
URANIUM-234	66/66	1.30	7080	Und	202	228(c)	na	Y	na	na	Y	a
THORIUM-230	66/69	0.400	1140	Und	25.8	22.9(c)	na	Y	na	na	Y	a
RADIUM-226	47/50	0.300	2950	Und	64.2	4.80(c)	na	N	na	na	Y	c
URANIUM-235/236	52/65	0.200	69.9	Log	6.35	10.4(b)	na	Y	na	na	Y	a
THORIUM-232	66/69	0.400	194	Und	4.59	5.10(c)	na	Y	na	na	Y	a
THORIUM, TOTAL	18/26	3.64	57.6	Log	17.6	24.1(b)	na	na	na	na	na	f
RADIUM-228	43/51	0.600	105	Und	4.00	8.30(c)	na	N	na	na	Y	c
THORIUM-228	66/69	0.500	6.91	Und	1.86	5.15(c)	na	Y	na	na	Y	a
NEPTUNIUM-237	0/46											
PLUTONIUM-239/240	2/54	1.51	6.50	Und	4.00	1.51(e)	na	na	na	na	na	f
PLUTONIUM-238	0/54											
STRONTIUM-90	20/49	0.600	6.50	Und	2.10	3.40(c)	na	na	Y	na	Y	a
TECHNETIUM-99	15/45	1.10	18.5	Und	3.84	5.09(c)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/39											
CESIUM-137	21/41	0.300	1.38	Und	0.575	0.980(c)	na	N	na	na	Y	c
Metals (mg/kg)												
ALUMINUM	68/68	1830	20800	Log	8420	9680(b)	na	N	na	na	Y	c
ANTIMONY	0/14											
ARSENIC	63/64	3.10	81.9	Und	9.05	18.3(c)	na	Y	na	na	Y	a
BARIUM	68/68	23.2	523	Und	107	361(c)	na	Y	na	na	Y	a
BERYLLIUM	50/67	0.570	1.90	Log	0.999	1.01(b)	na	na	Y	na	Y	a
CADMIUM	43/68	1.50	12.4	Log	4.20	4.10(b)	na	na	Y	na	Y	a
CHROMIUM	61/62	5.50	67.5	Und	20.9	50.4(c)	na	Y	na	na	Y	a
COBALT	65/68	3.80	22.2	Log	10.2	10.8(b)	na	N	na	na	Y	c
COPPER	65/68	10.2	695	Und	40.1	87.8(c)	na	Y	na	na	Y	a
CYANIDE	26/67	0.110	22.8	Und	1.25	0.630(c)	na	N	na	na	Y	b
LEAD	63/63	6.40	569	Und	57.0	182(c)	na	Y	na	na	Y	a
MANGANESE	62/62	94.6	2700	Und	576	928(c)	na	N	na	na	Y	c
MERCURY	19/68	0.120	1.30	Und	0.320	0.480(c)	na	na	Y	na	Y	a

TABLE A. IV - 3
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF PRODUCTION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist.	Average of Positive Hits	Representative Concentration	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No	Comment
MOLYBDENUM	35/63	2.20	12.4	Norm	5.02	4.60(a)	na	na	na	na	Y	c Background - 0/30
NICKEL	57/62	11.0	72.2	Log	27.7	29.5(b)	na	Y	na	na	Y	a
SELENIUM	15/57	0.480	7.70	Und	1.38	1.90(c)	na	na	Y	na	Y	a
SILICON	24/26	54.8	1100	Norm	576	640(a)	na	Y*	na	N	N	b, d
SILVER	42/63	2.40	36.4	Und	5.87	7.40(c)	na	na	na	na	Y	c Background - 0/30
THALLIUM	8/67	0.240	0.600	Und	0.400	0.390(c)	na	na	N	na	Y	c
VANADIUM	68/68	8.40	42.9	Log	23.5	25.3(b)	na	Y	na	na	Y	a
ZINC	67/67	21.3	767	Und	112	378(c)	na	Y	na	na	Y	a
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	14/67	1.00	350	Und	54.7	120(c)	na	na	na	na	na	e
1,1,2,2-TETRACHLOROETHANE	1/67	190	190	Und	190	190(d)	na	na	na	na	na	e
1,1-DICHLOROETHANE	3/68	1.00	22.0	Und	11.7	22.0(d)	na	na	na	na	na	e
1,1-DICHLOROETHENE	1/68	39.0	39.0	Und	39.0	39.0(d)	na	na	na	na	na	e
1,2-DICHLOROETHANE	1/68	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
1,2-DICHLOROETHENE (TOTAL)	5/68	1.00	340	Und	91.6	110(c)	na	na	na	na	na	e
2-BUTANONE	2/47	3.00	110	Und	56.5	110(d)	na	na	na	na	na	e
ACETONE	7/68	5.00	450	Und	110	150(c)	na	na	na	na	na	e
BENZENE	2/67	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
BROMODICHLOROMETHANE	0/67											
CARBON TETRACHLORIDE	0/67											
CHLOROFORM	6/68	1.00	280	Und	51.3	280(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	8/68	6.00	50.0	Und	21.4	50.0(d)	na	na	na	na	na	e
TETRACHLOROETHENE	13/66	1.00	15000	Und	1460	480(c)	na	na	na	na	na	e
TOLUENE	20/67	2.00	200	Und	35.6	160(c)	na	na	na	na	na	e
TRICHLOROETHENE	13/67	2.00	89000	Und	7280	90.0(c)	na	na	na	na	na	e
VINYL CHLORIDE	0/68											
XYLENES, TOTAL	4/67	6.00	980	Und	280	120(c)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
2,4-DINITROTOLUENE	1/69	53.0	53.0	Und	53.0	53.0(d)	na	na	na	na	na	e
2,6-DINITROTOLUENE	0/69											
3,3'-DICHLOROBENZIDINE	1/69	190	190	Und	190	190(d)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	29/69	48.0	61000	Und	3780	9100(c)	na	na	na	na	na	e

TABLE A. IV - 3
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF PRODUCTION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist.	Average of Positive Hits	Representative Concentration	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No	Comment
BENZO(A)PYRENE	24/68	39.0	69000	Und	5440	11000(c)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	25/69	45.0	39000	Und	3300	4500(c)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	24/69	38.0	69000	Und	4590	3800(c)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	32/69	41.0	11000	Und	1430	3700(c)	na	na	na	na	na	e
CARBAZOLE	1/10	65.0	65.0	Und	65.0	65.0(d)	na	na	na	na	na	e
CHRYSENE	26/68	70.0	18000	Und	2190	3600(c)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	12/69	39.0	23000	Und	3440	3400(c)	na	na	na	na	na	e
DIBENZOFURAN	15/69	50.0	3400	Und	533	2000(c)	na	na	na	na	na	e
FLUORANTHENE	35/68	39.0	33000	Und	2500	5000(c)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	20/69	42.0	49000	Und	4520	8000(c)	na	na	na	na	na	e
N-NITROSO-DI-N-PROPYLAMINE	1/65	39.0	39.0	Und	39.0	39.0(d)	na	na	na	na	na	e
N-NITROSODIPHENYLAMINE	3/69	43.0	680	Und	281	680(d)	na	na	na	na	na	e
PENTACHLOROPHENOL	0/67											
PHENANTHRENE	36/68	37.0	22000	Und	1460	3100(c)	na	na	na	na	na	e
PHENOL	4/68	110	730	Und	338	7.30(d)	na	na	na	na	na	e
PYRENE	35/68	41.0	22000	Und	2000	4500(c)	na	na	na	na	na	e
Pesticides/PCBs (ug/kg)												
AROCLOR-1254	37/67	33.0	10000	Log	1210	1590(b)	na	na	na	na	na	e
AROCLOR-1260	12/68	120	2800	Und	606	2800(d)	na	na	na	na	na	e
BETA-BHC	1/66	78.0	78.0	Und	78.0	78.0(d)	na	na	na	na	na	e
Dioxins/Furans (ng/g)												
HEPTACHLORODIBENZOFURANS	1/5	320	320	Und	320	320(d)	na	na	na	na	na	e
OCTACHLORODIBENZO-P-DIOXIN	3/5	270	1100	Und	660	1100(d)	na	na	na	na	na	e
OCTACHLORODIBENZOFURAN	1/5	1300	1300	Und	1300	1300(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 4
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF PRODUCTION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	54/54	0.400	4110	Log	171	457(b)	na	Y	na	na	Y	a	
URANIUM-234	54/54	0.400	3860	Log	117	143(b)	na	Y	na	na	Y	a	
THORIUM-230	48/48	0.200	2750	Und	63.8	31.8(c)	na	Y	na	na	Y	a	
RADIUM-226	36/39	0.300	2720	Und	76.8	3.40(c)	na	N	na	na	Y	c	
URANIUM-235/236	38/54	0.130	204	Log	9.54	10.6(b)	na	Y	na	na	Y	a	
THORIUM-232	40/48	0.400	38.0	Und	4.26	26.7(c)	na	N	na	na	Y	c	
RADIUM-228	30/40	0.600	56.2	Und	6.16	30.5(c)	na	N	na	na	Y	c	
THORIUM-228	44/48	0.400	38.9	Und	4.86	31.2(c)	na	N	na	na	Y	c	
NEPTUNIUM-237	0/52												
PLUTONIUM-239/240	2/52	0.600	0.800	Und	0.700	0.600(e)	na	na	na	na	na	f	
PLUTONIUM-238	5/52	0.500	4.10	Und	2.16	2.20(d)	na	na	na	na	na	f	
STRONTIUM-90	12/51	0.600	3.10	Und	1.46	2.22(c)	na	na	N	na	Y	c	
TECHNETIUM-99	7/50	1.10	93.0	Und	17.5	8.40(c)	na	na	na	na	Y	c	Background - 0/30
RUTHENIUM-106	0/51												
CESIUM-137	25/51	0.300	1.90	Log	0.640	0.622(b)	na	N	na	na	Y	c	
Metals (mg/kg)													
ALUMINUM	54/54	2380	20700	Norm	11200	12100(a)	na	Y	na	na	Y	a	
ANTIMONY	16/28	18.1	59.8	Log	29.4	41.1(b)	na	na	na	na	Y	c	Background - 0/22
ARSENIC	42/42	2.30	16.8	Log	6.62	7.59(b)	na	Y	na	na	Y	a	
BARIUM	54/54	12.6	183	Norm	89.1	96.5(a)	na	Y	na	na	Y	a	
BERYLLIUM	33/54	0.280	2.20	Log	0.782	0.824(b)	na	na	Y	na	Y	a	
CADMIUM	17/54	1.60	6.70	Und	4.52	5.80(c)	na	na	N	na	Y	c	
CHROMIUM	53/54	7.00	80.1	Und	17.2	25.6(c)	na	Y	na	na	Y	a	
COBALT	52/54	3.90	32.9	Und	11.0	16.7(c)	na	N	na	na	Y	c	
COPPER	47/54	9.50	56.2	Log	21.5	23.0(b)	na	Y	na	na	Y	a	
CYANIDE	9/54	0.130	1.50	Und	0.409	1.55(d)	na	na	Y	na	Y	a	
LEAD	45/46	2.90	60.5	Und	18.0	53.8(c)	na	Y	na	na	Y	a	
MANGANESE	54/54	303	1360	Log	617	672(b)	na	N	na	na	N	b	
MERCURY	5/55	0.140	4.60	Und	1.22	0.200(c)	na	na	N	na	Y	c	
MOLYBDENUM	27/50	0.600	7.60	Log	4.34	4.19(b)	na	na	na	na	Y	c	Background - 0/30
NICKEL	48/54	10.9	49.1	Log	23.4	24.8(b)	na	Y	na	na	Y	a	

TABLE A. IV - 4
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF PRODUCTION AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
SELENIUM	2/29	0.520	1.50	Und	1.01	0.520(e)	na	na	N	Y	Y	a	
SILICON	33/34	155	6660	Und	2470	6510(c)	na	N	na	na	Y	c	
SILVER	31/52	0.970	10.2	Norm	5.76	4.55(c)	na	na	na	na	Y	c	Background - 0/30
THALLIUM	23/54	0.110	0.550	Und	0.268	0.500(c)	na	na	Y	na	Y	a	
THORIUM, TOTAL	19/30	4.59	346	Log	33.9	40.9(b)	na	N	na	Y	Y	a	
URANIUM, TOTAL	61/61	3.30	12300	Und	470	1160(c)	na	Y	na	na	Y	a	
VANADIUM	53/54	8.50	49.0	Norm	26.3	27.8(a)	na	Y	na	na	Y	a	
ZINC	54/54	92.0	502	Und	66.6	104(c)	na	Y	na	na	Y	a	
Volatile Organics (ug/kg)													
CHLOROFORM	1/43	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	e	
METHYLENE CHLORIDE	3/43	1.00	14.0	Und	6.33	14.0(d)	na	na	na	na	na	e	
TETRACHLOROETHENE	6/43	1.00	48000	Und	8000	6.50(c)	na	na	na	na	na	e	
TRICHLOROETHENE	1/43	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e	
Semivolatile Organics (ug/kg)													
BENZO(A)ANTHRACENE	2/43	27.0	53.0	Und	40.0	53.0(d)	na	na	na	na	na	e	
BENZO(A)PYRENE	1/43	67.0	67.0	Und	67.0	67.0(d)	na	na	na	na	na	e	
BENZO(B)FLUORANTHENE	3/43	47.0	78.0	Und	65.3	78.0(d)	na	na	na	na	na	e	
BENZO(K)FLUORANTHENE	3/43	33.0	56.0	Und	47.0	56.0(d)	na	na	na	na	na	e	
BIS(2-ETHYLHEXYL)PHTHALATE	8/39	42.0	96.0	Und	55.2	96.0(d)	na	na	na	na	na	e	
CHRYSENE	2/43	46.0	95.0	Und	70.5	95.0(d)	na	na	na	na	na	e	
PHENANTHRENE	2/43	22.0	100	Und	61.0	100(d)	na	na	na	na	na	e	
PYRENE	6/43	23.0	110	Und	64.5	110(d)	na	na	na	na	na	e	
Pesticides/PCBs (ug/kg)													
AROCLOR-1254	12/55	11.0	1400	Und	262	450(c)	na	na	na	na	na	e	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 5
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
FIRE TRAINING AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	7/7	2.10	348	Log	123	348(d)	na	Y	na	Y	Y	a
URANIUM-234	7/7	1.50	361	Log	95.6	361(d)	na	Y	na	Y	Y	a
THORIUM-230	8/8	1.20	13.5	Und	3.41	13.5(d)	na	Y	na	Y	Y	a
RADIUM-226	5/5	0.500	1.30	Und	0.980	1.30(d)	na	N	na	N	N	b
URANIUM-235/236	4/7	0.700	19.1	Und	9.55	19.1(d)	na	Y	na	Y	Y	a
THORIUM-232	6/8	0.700	5.20	Log	1.55	3.48(b)	na	Y	na	Y	Y	a
RADIUM-228	3/5	1.10	5.80	Und	2.67	5.80(d)	na	N	na	Y	Y	a
THORIUM-228	7/8	0.600	6.20	Log	1.60	3.76(b)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/7											
PLUTONIUM-239/240	1/7	2.90	2.90	Und	2.90	2.90(d)	na	na	na	na	na	f
PLUTONIUM-238	1/7	1.30	1.30	Und	1.30	1.30(d)	na	na	na	na	na	f
STRONTIUM-90	3/7	0.600	5.00	Und	3.30	5.00(d)	na	na	Y	Y	Y	a
TECHNETIUM-99	2/7	10.5	27.3	Und	18.9	27.3(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/5											
CESIUM-137	4/5	0.600	1.40	Und	0.925	1.40(d)	na	Y	na	N	Y	a
Metals (mg/kg)												
ALUMINUM	9/9	2390	10600	Log	5470	9090(b)	na	Y	na	N	Y	a
ANTIMONY	1/2	3.10	3.10	Und	3.10	3.10(d)	na	na	na	na	Y	c Background - 0/22
ARSENIC	9/9	2.10	8.30	Log	3.93	5.45(b)	na	Y*	na	Y	N	b, d
BARIUM	9/9	31.4	117	Log	57.8	82.9(b)	N	na	na	Y	Y	a
BERYLLIUM	6/9	0.530	0.630	Und	0.565	0.630(d)	na	na	Y	Y	Y	a
CADMIUM	6/9	4.10	7.60	Und	5.47	7.60(d)	na	na	Y	Y	Y	a
CHROMIUM	8/9	9.60	23.5	Log	13.6	17.1(b)	na	N	na	Y	Y	a
COBALT	9/9	4.80	15.7	Und	7.36	15.7(d)	na	Y	na	Y	Y	a
COPPER	9/9	13.2	52.9	Und	19.9	52.9(d)	na	Y	na	Y	Y	a
CYANIDE	6/9	0.170	1.20	Und	0.498	1.20(d)	na	N	na	Y	Y	a
LEAD	8/8	22.4	114	Log	52.3	100(b)	na	Y	na	Y	Y	a
MANGANESE	8/8	304	1480	Und	491	1480(d)	na	Y*	na	Y	N	b, d
MERCURY	0/9											
MOLYBDENUM	4/9	2.20	4.60	Und	2.92	4.60(d)	na	na	na	na	Y	c Background - 0/30
NICKEL	9/9	13.5	25.7	Und	21.1	25.7(d)	na	Y	na	Y	Y	a

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TABLE A. IV - 5
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
FIRE TRAINING AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	2/8	0.510	0.810	Und	0.660	0.810(d)	na	na	Y	Y	Y	a
SILICON	3/3	247	797	Und	437	797(d)	na	na	na	N	N	b
SILVER	7/9	4.30	10.4	Norm	6.76	7.37(a)	na	na	na	na	Y	c Background - 0/30
THALLIUM	0/9											
THORIUM, TOTAL	9/12	3.00	82.0	Und	13.8	82.0(d)	na	na	na	na	na	f
URANIUM, TOTAL	17/17	9.90	1170	Log	187	520(b)	na	Y	na	Y	Y	a
VANADIUM	9/9	10.5	29.7	Log	17.2	22.9(b)	N	na	na	Y	N	b, d
ZINC	9/9	43.2	2150	Log	415	2150(d)	na	Y	na	Y	Y	a
Volatile Organics (ug/kg)												
2-BUTANONE	3/7	11.0	13.0	Und	12.3	13.0(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	1/8	220	220	Und	220	220(d)	na	na	na	na	na	e
TETRACHLOROETHENE	2/8	2.00	170	Und	86.0	170(d)	na	na	na	na	na	e
TOLUENE	1/8	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	3/9	41	2700	Und	967	2700(d)	na	na	na	na	na	e
BENZO(A)PYRENE	2/9	240	1600	Und	920	1600(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2/9	54.0	7700	Und	3877	7700(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2/9	52.0	210	Und	131	210(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	3/9	43.0	570	Und	235	570(d)	na	na	na	na	na	e
CHRYSENE	2/9	50.0	4700	Und	2375	4700(d)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1/9	62.0	62.0	Und	62.0	62.0(d)	na	na	na	na	na	e
FLUORANTHENE	7/9	56.0	3800	Log	714	3800(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/9	180	180	Und	180	180(d)	na	na	na	na	na	e
PHENANTHRENE	4/9	48.0	2200	Und	596	2200(d)	na	na	na	na	na	e
PYRENE	7/9	64.0	6800	Log	1180	6800(d)	na	na	na	na	na	e
Pesticides/PCBs (ug/kg)												
4,4'-DDT	1/8	19.0	19.0	Und	19.0	19.0(d)	na	na	na	na	na	e
AROCLOR-1254	2/8	21.0	45.0	Und	33.0	45.0(d)	na	na	na	na	na	e
AROCLOR-1260	1/8	1300	1300	Und	1300	1300(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 6
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SEWAGE TREATMENT AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	20/20	2.70	1480	Log	184	618(b)	na	Y	na	Y	Y	a	
URANIUM-234	17/17	2.60	1630	Und	179	1630(d)	na	Y	na	Y	Y	a	
THORIUM-230	24/38	1.40	806	Und	51.5	108(c)	na	Y	na	na	Y	a	
RADIUM-226	32/33	0.73	27.6	Und	3.42	18.5(c)	na	N	na	na	Y	c	
URANIUM-235/236	31/37	0.560	145	Log	18.5	41.2(b)	N	Y	na	na	Y	a	
THORIUM-232	18/20	0.600	61.9	Und	5.45	10.1(c)	na	N	na	Y	Y	a	
RADIUM-228	30/33	0.600	16.9	Und	2.61	9.50(c)	na	Y	na	na	Y	a	
THORIUM-228	18/20	0.700	24.8	Log	3.47	5.27(b)	na	Y	na	Y	Y	a	
NEPTUNIUM-237	0/19												
PLUTONIUM-239/240	1/20	1.50	1.50	Und	1.50	1.50(d)	na	na	na	na	na	f	
PLUTONIUM-238	1/20	1.50	1.50	Und	1.50	1.50(d)	na	na	na	na	na	f	
STRONTIUM-90	15/20	0.600	7.70	Log	2.06	3.14(b)	na	na	Y	Y	Y	a	
TECHNETIUM-99	6/16	1.50	228	Und	44.4	228(d)	na	na	na	na	Y	c	Background - 0/30
RUTHENIUM-106	0/33												
CESIUM-137	26/33	0.292	0.900	Norm	0.593	0.560(a)	na	Y	na	na	Y	a	
ACTINIUM-227	4/18	0.650	3.95	Und	2.15	3.95(d)	na	na	Y	Y	Y	a	
PROTACTINIUM-231	1/18	5.04	5.04	Und	5.04	5.04(d)	na	na	na	na	na	f	
RADIUM-224	18/18	0.313	5.36	Log	2.08	3.10(b)	na	Y	na	Y	Y	a	
THORIUM-234	18/18	2.05	2290	Log	259	1270(b)	na	na	na	na	na	f	
Metals (mg/kg)													
ALUMINUM	6/6	6280	25700	Und	17200	23100(a)	na	Y	na	Y	Y	a	
ANTIMONY	2/5	19.3	21.5	Und	20.4	21.5(d)	na	na	na	na	Y	c	Background - 0/22
ARSENIC	3/3	4.20	7.00	Und	5.50	7.00(d)	na	na	na	N	N	b	
BARIUM	6/6	76.9	176	Und	130	176(d)	na	Y	na	Y	Y	a	
BERYLLIUM	5/6	0.580	1.30	Und	0.946	1.30(d)	na	na	Y	Y	Y	a	
CADMIUM	0/6												
CHROMIUM	6/6	11.4	29.6	Und	22.13	29.6(d)	na	Y	na	Y	Y	a	
COBALT	6/6	6.50	15.8	Und	12.65	15.8(d)	na	Y	na	Y	Y	a	
COPPER	5/6	11.4	23.8	Und	18.1	23.8(d)	na	Y	na	Y	Y	a	
CYANIDE	4/6	0.560	0.880	Und	0.668	0.880(d)	na	Y	na	Y	Y	a	
LEAD	6/6	20.9	570	Und	138	570(d)	na	Y	na	Y	Y	a	

000537

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TABLE A. IV - 6
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SEWAGE TREATMENT AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
MAGNESIUM	6/6	1390	21300	Und	9000	21300(d)	na	Y	na	Y	Y	a	
MANGANESE	6/6	420	2010	Und	1050	2010(d)	na	N	na	Y	Y	a	
MERCURY	3/6	0.0800	0.120	Und	0.103	0.120(d)	na	na	Y	Y	Y	a	
MOLYBDENUM	1/6	8.50	8.50	Und	8.50	8.50(d)	na	na	na	na	Y	c	Background 0/30
NICKEL	6/6	13.2	28.5	Und	21.1	28.5(d)	na	Y	na	Y	Y	a	
SILVER	1/6	1.80	1.80	Und	1.80	1.80(d)	na	na	na	na	Y	c	Background 0/30
THALLIUM	2/6	0.250	0.470	Und	0.360	0.470(d)	na	na	Y	Y	Y	a	
THORIUM, TOTAL	4/6	8.80	14.5	Und	10.8	14.5(d)	na	na	na	na	na	f	
URANIUM, TOTAL	37/37	7.26	7570	Log	703	1710(b)	na	Y	na	na	Y	a	
VANDIUM	6/6	21.3	47.3	Und	36.9	47.3(d)	na	Y	na	Y	Y	a	
ZINC	6/6	63.1	432	Und	161	432(d)	na	Y	na	Y	Y	a	
Volatile Organics (ug/kg)													
METHYLENE CHLORIDE	2/6	1.00	13.0	Und	7.00	13.0(d)	na	na	na	na	na	e	
Semivolatile Organics (ug/kg)													
BENZO(A)ANTHRACENE	2/6	57.0	590	Und	324	590(d)	na	na	na	na	na	e	
BENZO(A)PYRENE	2/6	47.0	940	Und	494	940(d)	na	na	na	na	na	e	
BENZO(B)FLUORANTHENE	2/6	55.0	1800	Und	928	1800(d)	na	na	na	na	na	e	
BENZO(K)FLUORANTHENE	2/6	64.0	1300	Und	682	1300(d)	na	na	na	na	na	e	
CHRYSENE	3/6	45.0	590	Und	234	590(d)	na	na	na	na	na	e	
DIBENZO(A,H)ANTHRACENE	1/6	400	400	Und	400	400(d)	na	na	na	na	na	e	
INDENO(1,2,3-CD)PYRENE	1/6	1500	1500	Und	1500	1500(d)	na	na	na	na	na	e	
PHENANTHRENE	3/6	49.0	59.0	Und	54.7	59.0(d)	na	na	na	na	na	e	
PYRENE	4/6	43.0	290	Und	126.5	290(d)	na	na	na	na	na	e	
Pesticides/PCBs(ug/kg)													
AROCLOR-1254	1/2	120	120	Und	120	120(d)	na	na	na	na	na	e	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000559

TABLE A. IV - 7
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	55/55	1.70	46.3	Log	10.8	13.3(b)	na	Y	na	na	Y	a
URANIUM-234	55/55	1.40	34.8	Log	9.87	12.4(b)	na	Y	na	na	Y	a
THORIUM-230	54/57	1.20	4.20	Log	2.14	2.50(b)	na	Y	na	na	Y	a
RADIUM-226	43/50	0.500	2.30	Und	1.01	1.20(c)	na	Y	na	na	Y	a
URANIUM-235/236	33/58	0.600	3.60	Log	1.16	0.938(b)	na	Y	na	na	Y	a
THORIUM-232	50/54	0.600	3.900	Und	1.17	1.60(c)	na	N	na	na	Y	c
RADIUM-228	44/50	0.600	7.10	Und	1.30	1.47(c)	na	N	na	na	Y	c
THORIUM-228	53/54	0.700	3.90	Log	1.41	1.55(b)	na	Y	na	na	Y	a
NEPTUNIUM-237	0/38											
PLUTONIUM-239/240	0/55											
PLUTONIUM-238	0/55											
STRONTIUM-90	28/53	0.600	5.20	Norm	1.90	1.42(a)	na	na	Y	na	Y	a
TECHNETIUM-99	2/37	1.30	1.60	Und	1.45	1.30(e)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/50											
CESIUM-137	46/50	0.220	1.40	Norm	0.728	0.750(a)	na	Y	na	na	Y	a
ACTINIUM-227	0/3											
PROTACTINIUM-231	0/3											
RADIUM-224	3/3	1.19	1.58	Und	1.38	1.58(d)	na	na	na	Y	Y	a
THORIUM-234	2/3	20.9	36.9	Und	28.9	36.9(d)	na	na	na	na	na	f
METALS (mg/kg)												
ALUMINUM	15/15	1300	12700	Norm	8310	9550(a)	na	N	na	Y	Y	a, c
ANTIMONY	3/15	2.80	3.70	Und	3.13	3.70(d)	na	na	na	na	Y	c Background - 0/22
ARSENIC	14/15	1.90	8.10	Norm	5.19	5.80(a)	N	na	na	N	N	b
BARIUM	15/15	16.1	241	Log	94.6	137(b)	na	Y	na	Y	Y	a
BERYLLIUM	8/15	0.480	1.50	Log	0.925	0.978(b)	na	na	Y	Y	Y	a
CADMIUM	3/15	0.530	1.90	Und	1.34	1.90(d)	na	na	N	Y	Y	a
CHROMIUM	13/15	3.20	17.8	Norm	12.9	14.0(a)	na	N	na	Y	Y	a
COBALT	14/15	5.70	21.5	Norm	12.3	14.0(a)	na	N	na	Y	Y	a
COPPER	15/15	3.80	27.7	Log	12.0	15.5(b)	na	Y	na	Y	Y	a
CYANIDE	9/15	0.140	0.420	Norm	0.303	0.420(d)	na	Y	na	Y	Y	a
LEAD	14/14	13.3	32.3	Log	21.6	25.3(b)	na	Y	na	Y	Y	a

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TABLE A. IV - 7
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
MAGNESIUM	15/15	1200	59100	Und	5810	59100(d)	na	N	na	Y	Y	a	
MANGANESE	14/14	369	4400	Log	1240	1850(b)	na	Y	na	Y	Y	a	
MERCURY	0/15												
MOLYBDENUM	6/15	6.60	12.4	Und	9.07	12.4(d)	na	na	na	na	Y	c	Background - 0/30
NICKEL	15/15	3.80	43.6	Log	13.9	19.0(b)	na	N	na	Y	Y	a	
SELENIUM	2/14	0.510	0.550	Und	0.530	0.550(d)	na	na	N	Y	N	d	
SILVER	1/15	0.480	0.480	Und	0.480	0.480(d)	na	na	na	na	Y	c	Background - 0/30
THALLIUM	1/15	0.750	0.750	Und	0.750	0.750(d)	na	na	N	Y	Y	a	
THORIUM, TOTAL	6/9	6.05	10.4	Und	8.84	10.4(d)	na	na	na	na	na	f	
URANIUM, TOTAL	58/58	5.34	144	Log	41.1	52.9(b)	na	Y	na	na	Y	a	
VANADIUM	15/15	11.4	42.8	Norm	27.1	30.5(a)	na	Y	na	Y	Y	a	
ZINC	15/15	15.4	83.7	Norm	46.9	56.4(a)	na	N	na	Y	Y	a	
Volatile Organics (ug/kg)													
1,1,1,-TRICHLOROETHANE	0/14												
METHYLENE CHLORIDE	4/14	6.00	11.0	Und	7.25	11.0(d)	na	na	na	na	na	e	
BENZO(A)ANTHRACENE	2/13	34.0	48.0	Und	41.0	48.0(d)	na	na	na	na	na	e	
BENZO(A)PYRENE	1/13	51.0	51.0	Und	51.0	51.0(d)	na	na	na	na	na	e	
BENZO(B)FLUORANTHENE	2/13	50.0	50.0	Und	50.0	50.0(d)	na	na	na	na	na	e	
BENZO(K)FLUORANTHENE	2/13	31.0	56.0	Und	43.5	56.0(d)	na	na	na	na	na	e	
BIS(2-ETHYLHEXYL)PHTHALATE	1/13	45.0	45.0	Und	45.0	45.0(d)	na	na	na	na	na	e	
CHRYSENE	2/13	49.0	59.0	Und	54.0	59.0(d)	na	na	na	na	na	e	
PHENANTHRENE	1/13	41.0	41.0	Und	41.0	41.0(d)	na	na	na	na	na	e	
PYRENE	3/13	47.0	94.0	Und	74.3	94.0(d)	na	na	na	na	na	e	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 8
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	38/38	0.700	13.0	Log	4.10	5.07(b)	na	Y	na	na	Y	a
URANIUM-234	38/38	0.720	11.0	Log	3.29	3.99(b)	na	Y	na	na	Y	a
THORIUM-230	38/38	0.890	3.14	Log	1.64	1.75(b)	na	Y	na	na	Y	a
RADIUM-226	34/36	0.600	1.20	Norm	0.947	0.971(a)	na	Y*	na	na	N	b,d
URANIUM-235/236	3/38	0.630	1.60	Und	0.977	0.700(c)	na	na	Y	na	Y	a
THORIUM-232	36/38	0.600	1.40	Norm	0.976	1.00(a)	na	N	na	na	N	b
RADIUM-228	29/36	0.600	1.35	Und	1.04	1.30(c)	na	Y*	na	na	N	b, d
THORIUM-228	37/38	0.570	2.91	Log	1.37	1.56(b)	na	Y	na	na	Y	a
NEPTUNIUM-237	1/29	0.810	0.810	Und	0.810	0.810(d)	na	na	na	na	na	f
PLUTONIUM-239/240	0/37											
PLUTONIUM-238	0/37											
STRONTIUM-90	15/34	0.600	2.50	Und	0.993	1.40(c)	na	na	Y	na	Y	a
TECHNETIUM-99	1/33	1.60	1.60	Und	1.60	1.60(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/36											
CESIUM-137	29/36	0.300	1.60	Log	0.638	0.772(b)	na	Y	na	na	Y	a
Metals (mg/kg)												
ALUMINUM	21/21	4730	13400	Norm	8960	9860(a)	na	N	na	Y	Y	a
ANTIMONY	1/20	3.20	3.20	Und	3.20	3.20(d)	na	na	na	na	Y	c Background - 0/22
ARSENIC	20/21	2.40	6.00	Norm	3.96	4.23(a)	na	Y*	na	N	N	b, d
BARIUM	21/21	37.4	185	Log	87.1	101(b)	na	Y	na	Y	Y	a
BERYLLIUM	8/21	0.410	1.70	Und	0.914	1.60(c)	na	na	Y	Y	Y	a
BORON	1/1	14.3	14.3	Und	14.3	14.3(d)	na	na	na	na	na	f
CADMIUM	5/21	0.510	1.90	Und	1.42	1.70(c)	na	na	N	Y	Y	a
CHROMIUM	21/21	5.90	19.4	Norm	12.9	14.2(a)	na	Y	na	Y	Y	a
COBALT	21/21	5.10	17.9	Norm	10.8	12.0(a)	N	na	na	Y	Y	a
COPPER	21/21	6.80	23.6	Log	14.2	16.4(b)	na	Y	na	Y	Y	a
CYANIDE	9/21	0.150	1.70	Und	0.451	0.530(c)	na	Y	na	Y	Y	a
LEAD	18/18	8.80	33.3	Norm	20.3	22.9(a)	na	N	na	Y	Y	a
MAGNESIUM	21/21	1230	28100	Und	5050	17600(c)	na	Y	na	Y	Y	a
MANGANESE	20/20	294	1470	Log	781	949(b)	N	na	na	Y	Y	a
MERCURY	0/21											

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TABLE A. IV - 8
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
MOLYBDENUM	7/21	6.90	13.3	Und	9.66	11.7(c)	na	na	na	na	Y	c Background - 0/30
NICKEL	21/21	5.50	25.8	Norm	14.9	17.0(a)	na	Y	na	Y	Y	a
SELENIUM	4/19	0.320	0.770	Und	0.570	0.770(d)	na	na	Y	Y	Y	a
SILVER	1/21	3.90	3.90	Und	3.90	3.90(d)	na	na	na	na	Y	c Background - 0/30
THALLIUM	1/21	0.670	0.670	Und	0.670	0.670(d)	na	na	N	Y	Y	a
THORIUM, TOTAL	9/11	6.64	11.2	Norm	9.58	10.0(a)	na	na	na	na	na	f
URANIUM, TOTAL	39/39	3.00	35.0	Log	12.4	14.8(b)	na	Y	na	na	Y	a
VANADIUM	21/21	12.2	28.8	Norm	20.7	22.4(a)	na	N	na	N	N	b
ZINC	20/21	28.5	137	Log	57.2	68.1(b)	na	Y	na	Y	Y	a
Volatile Organics (ug/kg)												
TRICHLOROETHENE	1/18	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	1/18	48.0	48.0	Und	48.0	48.0(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1/18	56.0	56.0	Und	56.0	56.0(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/18	60.0	60.0	Und	60.0	60.0(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	4/18	57.0	590	Und	194	590(d)	na	na	na	na	na	e
CHRYSENE	1/18	77.0	77.0	Und	77.0	77.0(d)	na	na	na	na	na	e
PHENANTHRENE	2/18	45.0	95.0	Und	70.0	95.0(d)	na	na	na	na	na	e
PYRENE	3/18	63.0	130	Und	97.7	130(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 9
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WASTE STORAGE/DISPOSAL AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radiodnuclides (pCi/g)												
URANIUM-238	50/50	0.900	583	Und	22.9	71.5(c)	na	Y	na	na	Y	a
URANIUM-234	47/47	0.700	153	Und	9.26	32.7(c)	na	Y	na	na	Y	a
THORIUM-230	47/51	0.400	229	Und	12.6	35.7(c)	na	Y	na	na	Y	a
RADIUM-226	38/40	0.300	75.1	Und	5.68	34.7(c)	na	N	na	na	Y	c
LEAD-210	3/3	1.25	37.1	Und	19.1	37.1(d)	na	na	na	Y	Y	a
POLONIUM-210	10/10	1.46	84.5	Log	29.5	84.5(d)	na	na	na	na	na	f
URANIUM-235/236	23/44	0.118	33.0	Und	2.04	1.40(c)	na	Y	na	na	Y	a
THORIUM-232	44/51	0.190	6.60	Und	1.18	2.54(c)	na	Y	na	na	Y	a
RADIUM-228	22/40	0 600	2.10	Und	1.02	1.45(c)	na	Y	na	na	Y	a
THORIUM-228	47/51	0 300	62.7	Und	2.75	8.30(c)	na	Y	na	na	Y	a
NEPTUNIUM-237	7/36	0.327	1.10	Und	0.711	1.08(c)	na	na	na	na	na	f
PLUTONIUM-239/240	3/44	0.215	1.10	Und	0.642	0.300(c)	na	na	na	na	na	f
PLUTONIUM-238	3/44	0.259	0.400	Und	0.315	0.300(c)	na	na	na	na	na	f
STRONTIUM-90	10/48	0.600	3.62	Und	1.29	1.50(c)	na	na	N	na	Y	c
TECHNETIUM-99	3/48	1.20	16.0	Und	7.33	1.20(c)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	3/35	2.25	10.6	Und	5.29	3.07(c)	na	na	na	na	Y	c Background - 0/30
CESIUM-137	15/48	0.400	2.01	Und	0.777	1.10(c)	na	Y	na	na	Y	a
Metals (mg/kg)												
ALUMINUM	44/44	4080	16200	Norm	9280	9960(a)	na	Y	na	na	Y	a
ANTIMONY	10/26	12.8	32.3	Und	25.2	30.2(c)	na	na	na	na	Y	c Background - 0/22
ARSENIC	43/44	2.00	32.5	Und	7.30	10.0(c)	na	Y	na	na	Y	a
BARIUM	44/44	36.5	116	Log	65.4	70.2(b)	N	na	na	na	Y	c
BERYLLIUM	26/44	0.490	1.40	Log	0.775	0.741(b)	na	na	Y	na	Y	a
CADMIUM	18/44	1.70	6.70	Und	4.07	5.80(c)	na	na	Y	na	Y	a
CHROMIUM	44/44	6.00	21.6	Norm	14.4	15.4(a)	na	Y	na	na	Y	a
COBALT	43/44	3.90	14.3	Norm	9.03	9.60(a)	Y*	na	na	na	N	b, d
COPPER	44/44	8.80	49.2	Log	17.2	18.7(b)	na	Y	na	na	Y	a
CYANIDE	8/43	0.120	0.330	Und	0.194	0.240(c)	na	na	Y*	na	N	b, d
LEAD	34/34	8.60	29.7	Log	17.0	19.3(b)	N	na	na	na	Y	c
MANGANESE	44/44	142	1440	Und	537	693(c)	na	N	na	na	N	b
MERCURY	0/44											

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TABLE A. IV - 9
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WASTE STORAGE/DISPOSAL AREA
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
MOLYBDENUM	19/44	2.70	5.70	Und	4.40	5.20(c)	na	na	na	na	na	c Background - 0/30
NICKEL	44/44	8.20	41.3	Log	20.3	22.4(b)	na	Y	na	na	Y	a
SELENIUM	6/37	0.460	0.840	Und	0.613	0.840(d)	na	na	Y	na	Y	a
SILVER	25/44	0.470	10.4	Norm	6.01	4.52(a)	na	na	na	na	Y	c Background - 0/30
THALLIUM	2/43	0.260	0.510	Und	0.385	0.280(c)	na	na	N	na	N	b
THORIUM, TOTAL	18/25	1.73	60.2	Log	12.4	17.0(b)	na	na	na	na	na	f
URANIUM, TOTAL	48/48	1.00	1750	Log	72.8	80.5(b)	na	Y	na	na	Y	a
VANADIUM	44/44	13.9	33.8	Norm	23.0	24.3(a)	na	Y	na	na	Y	a
ZINC	41/44	32.9	189	Und	55.9	79.5(c)	na	Y	na	na	Y	a
Volatile Organics (ug/kg)												
BENZENE	1/19	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	4/19	2.00	28.0	Und	17.2	28.0(d)	na	na	na	na	na	e
TRICHLOROETHENE	2/19	4.00	6.00	Und	5.00	6.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	4/19	39.0	1300	Und	368	1300(d)	na	na	na	na	na	e
BENZO(A)PYRENE	3/19	42.0	980	Und	359	980(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	5/19	39.0	2400	Und	536	2400(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/19	61.0	61.0	Und	61.0	61.0(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	7/19	45.0	3700	Und	1460	3700(d)	na	na	na	na	na	e
CHRYSENE	4/19	40.0	1100	Und	323	1100(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/19	40.0	40.0	Und	40.0	40.0(d)	na	na	na	na	na	e
PHENANTHRENE	3/19	65.0	6800	Und	2310	6800(d)	na	na	na	na	na	e
PYRENE	5/19	65.0	2700	Und	613	2700(d)	na	na	na	na	na	e
Pesticides/PCBs (ug/kg)												
AROCLOR-1254	2/25	11.0	14.0	Und	12.5	14.0(d)	na	na	na	na	na	e
Furans/Dioxins (ng/g)												
OCTACHLORODIBENZO-P-DIOXINS	3/9	240	900	Und	483	900(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 10
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHERN AREA OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	53/53	0.300	148	Und	6.48	14.1(c)	na	Y	na	na	Y	a
URANIUM-234	53/53	0.200	34.9	Log	4.14	5.56(b)	na	Y	na	na	Y	a
THORIUM-230	54/55	0.700	14.8	Und	1.73	2.30(c)	na	N	na	na	Y	c
RADIUM-226	45/53	0.300	1.40	Und	0.922	1.40(d)	na	Y*	na	na	N	b, d
URANIUM-235/236	5/53	0.200	2.45	Und	1.01	0.809(c)	na	na	Y	na	Y	a
THORIUM-232	51/55	0.220	1.50	Norm	0.848	0.872(a)	na	Y*	na	na	N	b, d
RADIUM-228	35/53	0.590	1.32	Und	0.947	1.20(c)	na	Y*	na	na	N	b, d
THORIUM-228	54/56	0.256	3.29	Log	1.05	1.19(b)	na	N	na	na	N	b
NEPTUNIUM-237	0/34											
PLUTONIUM-239/240	8/53	0.400	1.70	Log	0.838	0.404(b)	na	na	na	na	na	f
PLUTONIUM-238	0/53											
STRONTIUM-90	30/54	0.700	4.10	Log	1.56	1.35(b)	na	na	Y	na	Y	a
TECHNETIUM-99	1/50	1.30	1.30	Und	1.30	1.30(d)	na	na	Y	na	Y	c Background - 0/30
RUTHENIUM-106	0/39											
CESIUM-137	37/53	0.230	1.30	0.544	0.544	0.548(b)	na	N	na	na	Y	c
Metals (mg/kg)												
ALUMINUM	35/35	2220	12300	Norm	7380	8020(a)	na	N	na	na	N	b
ANTIMONY	4/25	2.80	10.6	Und	5.32	4.10(c)	na	na	Y	na	Y	c Background - 0/22
ARSENIC	34/35	1.50	25.3	Und	6.81	23.3(c)	na	N	na	na	Y	c
BARIUM	35/35	32.1	127	Log	69.1	76.9(b)	N	na	na	na	Y	c
BERYLLIUM	11/35	0.350	1.70	Und	0.743	1.60(c)	na	na	Y	na	Y	a
CADMIUM	3/35	0.490	2.80	Und	1.53	1.30(c)	na	na	N	na	Y	c
CHROMIUM	35/35	4.60	42.8	Und	12.0	17.7(c)	na	N	na	na	Y	c
COBALT	35/35	3.30	14.8	Norm	8.54	9.27(a)	na	Y*	na	na	N	b, d
COPPER	34/35	5.00	30.4	Log	13.0	14.5(b)	na	Y	na	na	Y	a
CYANIDE	18/29	0.190	4.30	Und	0.651	0.910(c)	na	Y	na	Y	Y	a
LEAD	26/26	9.20	2180	Und	329	2160(c)	na	Y	na	Y	Y	a
MAGNESIUM	35/35	1090	29800	Und	8000	26300(c)	na	Y	na	na	Y	a
MANGANESE	32/32	361	1460	Log	710	812(b)	N	na	na	na	N	b
MERCURY	3/35	0.0600	6.30	Und	2.31	0.570(c)	na	na	N	na	Y	c
MOLYBDENUM	7/35	6.50	8.50	Norm	7.70	3.59(a)	na	na	na	na	na	c Background - 0/30

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TABLE A. IV - 10
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHERN AREA OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	25/35	9.20	21.00	Norm	12.8	12.3(a)	na	Y*	na	na	N	b, d
SELENIUM	7/26	0.230	0.800	Log	0.400	0.296(b)	na	na	Y	Y	Y	a
SILVER	3/35	0.470	8.70	Und	3.22	1.30(c)	na	na	na	na	Y	c Background - 0/30
THALLIUM	0/35											
THORIUM, TOTAL	14/15	2.01	12.5	Norm	7.00	8.03(a)	na	na	na	na	na	f
URANIUM, TOTAL	56/57	1.50	444	Und	22.2	58.8(c)	na	Y	na	na	Y	a
VANADIUM	35/35	9.50	27.5	Norm	19.3	20.6(a)	na	N	na	na	N	b
ZINC	30/35	23.2	168	Log	56.9	61.7(b)	na	N	na	na	Y	a, c
Volatile Organics (ug/kg)												
TETRACHLOROETHENE	2/21	2.00	3.00	Und	2.50	3.00(d)	na	na	na	na	na	e
TRICHLOROETHENE	1/21	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	2/21	48.0	67.0	Und	57.5	67.0(d)	na	na	na	na	na	e
BENZO(A)PYRENE	2/21	60.0	61.0	Und	60.5	61.0(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2/21	39.0	66.0	Und	52.5	66.0(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2/21	53.0	77.0	Und	65.0	77.0(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	5/21	50.0	700	Und	183	210(c)	na	na	na	na	na	e
CHRYSENE	2/21	61.0	88.0	Und	74.5	88.0(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	2/21	35.0	50.0	Und	42.5	50.0(d)	na	na	na	na	na	e
PHENANTHRENE	2/21	67.0	110	Und	88.5	110(d)	na	na	na	na	na	e
PYRENE	5/21	47.0	150	Und	82.4	150(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000571

TABLE A. IV - 11
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
TRAP RANGE
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	10/10	0.500	3.70	Norm	2.12	2.69(a)	na	Y	na	Y	Y	a
URANIUM-234	10/10	0.600	4.63	Log	2.19	3.62(b)	na	Y	na	Y	Y	a
THORIUM-230	9/10	0.800	1.77	Norm	1.11	1.25(a)	na	Y*	na	N	N	b, d
RADIUM-226	10/10	0.600	1.40	Norm	1.07	1.22(a)	na	N	na	N	N	b
URANIUM-235/236	2/10	0.200	0.810	Und	0.505	0.810(d)	na	na	Y	Y	Y	a
THORIUM-232	10/10	0.500	1.04	Log	0.680	0.799(b)	na	Y*	na	N	N	b, d
RADIUM-228	2/10	0.940	1.09	Und	1.02	1.09(d)	na	na	Y*	N	N	b, d
THORIUM-228	10/10	0.300	1.63	Log	0.747	1.14(b)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/1											
PLUTONIUM-239/240	6/8	0.400	1.70	Und	0.933	1.70(d)	na	na	na	na	na	f
PLUTONIUM-238	0/8											
STRONTIUM-90	9/10	0.800	2.10	Norm	1.47	1.68(a)	na	na	Y	Y	Y	a
TECHNETIUM-99	0/10											
RUTHENIUM-106	0/2											
CESIUM-137	8/10	0.230	0.700	Norm	0.474	0.517(a)	na	N	na	N	N	b
Metals (mg/kg)												
ALUMINUM	16/16	4130	10300	Norm	7540	8310(a)	na	N	na	N	N	b
ANTIMONY	3/8	2.80	4.10	Und	3.57	4.10(d)	na	na	na	na	Y	c Background 0/22
ARSENIC	16/16	2.00	25.3	Log	8.89	13.3(b)	na	Y	na	Y	Y	a
BARIUM	16/16	36.1	127	Log	76.8	89.1(b)	na	Y	na	Y	Y	a
BERYLLIUM	8/16	0.350	0.730	Log	0.566	0.730(d)	na	na	Y	Y	Y	a
CADMIUM	1/16	0.490	0.490	Und	0.490	0.490(d)	na	na	N	N	N	b
CHROMIUM	16/16	6.40	42.8	Und	14.0	42.8(d)	na	Y	na	Y	Y	a
COBALT	16/16	3.30	14.8	Norm	8.42	9.61(a)	Y	na	na	Y	Y	a
COPPER	15/16	8.90	30.4	Log	15.3	18.2(b)	na	Y	na	Y	Y	a
CYANIDE	8/10	0.190	4.30	Log	0.930	1.99(b)	na	Y	na	Y	Y	a
LEAD	16/16	17.5	2180	Log	521	2180(d)	na	Y	na	Y	Y	a
MANGANESE	16/16	361	1460	Log	762	928(b)	N	na	na	Y	Y	a
MERCURY	3/16	0.0600	6.30	Und	2.31	6.30(d)	na	na	Y	Y	Y	a
MOLYBDENUM	2/16	7.50	8.50	Und	8.00	8.50(d)	na	na	na	na	Y	c Background 0/30
NICKEL	8/16	10.3	14.4	Norm	12.5	11.8(a)	na	N	na	N	N	b

000572

TABLE A. IV - 11
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
TRAP RANGE
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	4/16	0.230	0.250	Und	0.242	0.250(d)	na	na	Y*	N	N	b, d
SILICON	16/16	56.9	718	Norm	305	384(a)	na	Y*	na	N	N	b, d
SILVER	0/16											
THALLIUM	0/16											
THORIUM, TOTAL	2/2	6.88	9.42	Und	8.15	9.42(d)	na	na	na	na	na	f
URANIUM, TOTAL	10/10	8.00	23.7	Log	14.7	19.0(b)	na	Y	na	Y	Y	a
VANADIUM	16/16	14.0	25.3	Norn	20.4	22.0(a)	na	N	na	N	N	b
ZINC	16/16	24.5	168	Log	65.5	87.3(b)	na	Y	na	Y	Y	a
Semi volatile Organics (ug/kg)												
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	62.0	62.0	Und	62.0	62.0(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 12
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHEAST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	25/25	0.300	10.5	Log	3.07	4.67(b)	na	Y	na	Y	Y	a
URANIUM-234	25/25	0.200	8.50	Und	2.86	6.70(c)	na	Y	na	Y	Y	a
THORIUM-230	25/25	0.700	2.70	Norm	1.61	1.80(a)	na	Y	na	Y	Y	a
RADIUM-226	19/25	0.400	1.24	Und	0.961	1.20(c)	na	Y*	na	N	Y	b, d
URANIUM-235/236	1/25	0.800	0.800	Und	0.800	0.800(d)	na	na	Y	Y	Y	a
THORIUM-232	23/25	0.500	1.50	Norm	0.976	1.02(a)	na	N	na	Y	N	d
RADIUM-228	21/25	0.590	1.32	Norm	0.993	0.986(a)	na	Y*	na	Y	N	b, d
THORIUM-228	24/25	0.600	2.49	Log	1.21	1.43(b)	na	N	na	Y	Y	a
NEPTUNIUM-237	0/18											
PLUTONIUM-239/240	2/25	0.500	0.600	Und	0.550	0.600(d)	na	na	na	na	na	f
PLUTONIUM-238	0/25											
STRONTIUM-90	16/24	0.700	4.10	Log	1.72	2.13(b)	na	na	Y	Y	Y	a
TECHNETIUM-99	0/20											
RUTHENIUM-106	0/22											
CESIUM-137	18/24	0.230	1.10	Norm	0.519	0.514(a)	na	N	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	10/10	5310	11600	Log	7100	8330(b)	N	na	na	N	N	b
ANTIMONY	1/8	10.6	10.6	Und	10.6	10.6(d)	na	na	na	na	Y	c Background - 0/22
ARSENIC	9/10	1.50	8.70	Log	4.54	6.98(b)	na	N	na	Y	N	d
BARIUM	10/10	40.9	81.5	Log	56.1	65.0(b)	N	na	na	N	N	b
BERYLLIUM	2/10	0.540	1.40	Und	0.970	1.40(d)	na	na	Y	Y	Y	a
CADMIUM	1/10	2.80	2.80	Und	2.80	2.80(d)	na	na	N	Y	Y	a
CHROMIUM	10/10	7.00	17.7	Log	10.9	13.3(b)	N	na	na	Y	Y	a
COBALT	10/10	8.30	11.8	Norm	10.0	10.7(a)	na	N	na	N	N	b
COPPER	10/10	6.20	18.0	Log	10.8	13.6(b)	na	Y	na	Y	Y	a
CYANIDE	7/10	0.280	0.910	Log	0.446	0.596(b)	na	Y	na	Y	Y	a
LEAD	8/8	13.7	61.5	Und	22.3	61.5(d)	na	Y	na	Y	Y	a
MAGNESIUM	10/10	1090	17700	Und	4352	17700(d)	na	N	na	Y	Y	a
MANGANESE	8/8	391	979	Log	554	695(b)	N	na	na	N	N	b
MERCURY	0/10											
MOLYBDENUM	5/10	6.50	8.20(d)	Und	7.58	8.20(d)	na	na	na	na	Y	c Background - 0/30

TABLE A. IV - 12
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHEAST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	9/10	9.20	21.0	Norm	13.4	15.0(a)	na	Y	na	Y	Y	a	
SELENIUM	3/8	0.510	0.800	Und	0.610	0.800(d)	na	na	Y	Y	Y	a	
SILVER	1/10	8.70	8.70	Und	8.70	8.70(d)	na	na	na	na	Y	c	Background - 0/30
THALLIUM	0/10												
THORIUM, TOTAL	5/6	4.08	9.94	Und	7.41	9.94(d)	na	na	na	na	na	f	
URANIUM, TOTAL	26/26	4.04	31.6	Log	11.4	14.1(b)	na	Y	na	Y	Y	a	
VANADIUM	10/10	9.50	27.5	Norm	17.7	20.6(a)	na	N	na	N	N	b	
ZINC	10/10	27.6	96.8	Log	47.4	62.3(b)	na	N	na	Y	Y	a	
Volatile Organics (ug/kg)													
TETRACHLOROETHENE	1/10	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e	
TRICHLOROETHENE	1/10	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e	
Semivolatile Organics (ug/kg)													
BIS(2-ETHYLHEXYL)PHTHALATE	1/10	51.0	51.0	Und	51.0	51.0(d)	na	na	na	na	na	e	
PYRENE	1/10	59.0	59.0	Und	59.0	59.0(d)	na	na	na	na	na	e	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 13
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHWEST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	18/18	0.300	148	Log	13.6	36.0(b)	na	Y	na	Y	Y	a
URANIUM, TOTAL, (ug/g)	20/21	1.50	443	Log	40.0	95.4(b)	na	Y	na	Y	Y	a
URANIUM-234	18/18	0.400	34.9	Log	7.01	19.2(b)	na	Y	na	Y	Y	a
THORIUM-230	20/20	0.860	14.8	Und	2.15	2.30(c)	na	N	na	Y	Y	a
RADIUM-226	16/18	0.300	1.40	Norm	0.784	0.861(a)	na	Y*	na	N	N	b, d
URANIUM-235/236	2/18	0.809	2.45	Und	1.63	2.45(d)	na	na	Y	Y	Y	a
THORIUM-232	18/20	0.220	1.37	Norm	0.778	0.832(a)	na	Y*	na	Y	N	b, d
THORIUM, TOTAL, (ug/g)	7/7	2.01	12.5	Log	6.39	12.1(b)	na	na	na	na	na	f
RADIUM-228	12/18	0.590	1.30	Norm	0.856	0.807(a)	na	Y*	na	Y	N	b, d
THORIUM-228	20/21	0.256	3.29	Log	1.02	1.29(b)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/15											
PLUTONIUM-239/240	0/20											
PLUTONIUM-238	0/20											
STRONTIUM-90	5/20	0.800	1.60	Und	1.24	1.60(d)	na	na	N	Y	Y	a
TECHNETIUM-99	1/20	1.30	1.30	Und	1.30	1.30(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/15											
CESIUM-137	11/19	0.400	1.30	Log	0.636	0.765(b)	na	N	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	9/9	2220	12300	Norm	7400	9500(a)	na	N	na	Y	N	d
ANTIMONY	0/9											
ARSENIC	9/9	3.60	7.30	Norm	5.38	6.24(a)	N	na	na	N	N	b
BARIUM	9/9	32.1	109	Log	70.0	99.2(b)	N	na	na	Y	Y	a
BERYLLIUM	1/9	1.70	1.70	Und	1.70	1.70(d)	na	na	N	Y	Y	a
CADMIUM	1/9	1.30	1.30	Und	1.30	1.30(d)	na	na	N	Y	Y	a
CHROMIUM	9/9	4.60	14.4	Norm	9.69	11.9(a)	na	N	na	N	N	b
COBALT	9/9	3.70	11.5	Norm	7.13	8.72(a)	na	Y*	na	N	N	b, d
COPPER	9/9	5.00	15.2	Norm	11.7	13.7(a)	na	Y	na	Y	Y	a
CYANIDE	3/9	0.34	0.440	Und	0.383	0.440(d)	na	Y	na	Y	Y	a
LEAD	2/2	9.20	22.4	Und	15.8	22.4(d)	na	na	na	N	N	b
MANGANESE	8/8	386	1350	Log	763	1240(b)	N	na	na	Y	Y	a
MERCURY	0/9											

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TABLE A. IV - 13
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHWEST CORNER OF THE FEMP
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
MOLYBDENUM	0/9											
NICKEL	8/9	9.20	16.1	Norm	12.4	13.8(a)	na	N	na	N	N	b
SELENIUM	0/2											
SILICON	9/9	285	911	Norm	654	796(a)	na	Y*	na	N	N	b, d
SILVER	2/9	0.470	0.480	Und	0.475	0.480(d)	na	na	na	na	Y	c Background - 0/30
THALLIUM	0/9											
VANADIUM	9/9	10.9	26.9	Norm	19.2	22.7(a)	na	N	na	N	N	b
ZINC	4/9	23.2	85.1	Und	45.9	85.1(d)	na	Y	na	Y	Y	a
Volatile Organics (ug/kg)												
TETRACHLOROETHENE	1/9	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
Semivolatiles (ug/kg)												
BENZO(A)ANTHRACENE	2/9	48.0	67.0	Und	57.5	67.0(d)	na	na	na	na	na	e
BENZO(A)PYRENE	2/9	60.0	61.0	Und	60.5	61.0(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2/9	39.0	66.0	Und	52.5	66.0(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2/9	53.0	77.0	Und	65.0	77.0(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	3/9	50.0	700	Und	267	700	na	na	na	na	na	e
CHRYSENE	2/9	61.0	88.0	Und	74.5	88.0(d)	na	na	na	na	na	e
INDENO(1,23-CD)PYRENE	2/9	35.0	50.0	Und	42.5	50.0(d)	na	na	na	na	na	c
PHENANTHRENE	2/9	67.0	110	Und	88.5	110(d)	na	na	na	na	na	e
PYRENE	4/9	47.0	150	Und	88.2	150(d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 14
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	35/35	1.90	187	Log	16.1	21.1(b)	na	Y	na	na	Y	a
URANIUM-234	34/34	1.90	44.8	Log	10.4	14.5(b)	na	Y	na	na	Y	a
THORIUM-230	34/36	1.30	102	Und	5.24	5.50(c)	na	Y	na	na	Y	a
RADIUM-226	23/32	0.600	2.30	Und	1.07	1.20(c)	na	Y*	na	na	N	b, d
URANIUM-235/236	16/37	0.200	13.4	Und	2.07	3.60(c)	na	Y	na	na	Y	a
THORIUM-232	33/34	0.600	6.60	Und	1.23	1.60(c)	na	N	na	na	Y	c
RADIUM-228	27/32	0.600	1.47	Norm	1.07	1.06(a)	na	N	na	na	N	b
THORIUM-228	32/34	0.700	5.10	Und	1.33	1.70(c)	na	Y	na	na	Y	a
NEPTUNIUM-237	0/34											
PLUTONIUM-239/240	0/35											
PLUTONIUM-238	0/35											
STRONTIUM-90	18/34	0.700	7.70	Log	2.46	2.44(b)	na	Y	Y	na	Y	a
TECHNETIUM-99	2/26	3.50	11.3	Und	7.40	3.50(c)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/31											
CESIUM-137	26/31	0.300	1.40	Log	0.604	0.751(b)	na	N	na	na	Y	c
ACTINIUM-227	0/2											
PROTACTINIUM-231	0/2											
RADIUM-224	2/2	0.313	1.37	Und	0.841	1.37(d)	na	na	na	Y	Y	a
THORIUM-234	2/2	2.05	36.9	Und	19.5	36.9(d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	4/4	7370	18800	Und	10900	18800(d)	na	N	na	Y	Y	a
ANTIMONY	1/4	2.90	2.90	Und	2.90	2.90(d)	na	na	na	na	Y	c Background - 0/22
ARSENIC	4/4	5.00	7.00	Und	6.10	7.00(d)	na	N	na	N	N	b
BARIUM	4/4	106	241	Und	162	241(d)	na	Y	na	Y	Y	a
BERYLLIUM	4/4	0.890	1.40	Und	1.22	1.40(d)	na	na	Y	Y	Y	a
CADMIUM	1/4	1.90	1.90	Und	1.90	1.90(d)	na	na	N	Y	Y	a
CHROMIUM	4/4	10.4	23.6	Und	15.2	23.6(d)	na	Y	na	Y	Y	a
COBALT	4/4	6.90	21.5	Und	15.7	21.5(d)	na	N	na	Y	Y	a
COPPER	3/4	10.3	11.9	Und	10.9	11.9(d)	na	Y	na	N	Y	a
CYANIDE	2/4	0.360	0.420	Und	0.390	0.420(d)	na	Y	na	Y	Y	a
LEAD	4/4	19.2	45.4	Und	29.6	45.4(d)	na	Y	na	Y	Y	a

TABLE A. IV - 14
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
MAGNESIUM	4/4	1350	9240	Und	3470	9240(d)	na	N	na	Y	Y	a
MANGANESE	4/4	531	4400	Und	2250	4400(d)	na	Y	na	Y	Y	a
MERCURY	0/4											
MOLYBDENUM	0/4											
NICKEL	4/4	6.10	23.7	Und	14.4	23.7(d)	na	N	na	Y	Y	a
SELENIUM	2/4	0.280	0.550	Und	0.415	0.550(d)	na	na	Y*	Y	N	b, d
SILVER	1/4	1.80	1.80	Und	1.80	1.80(d)	na	na	na	na	Y	c Background - 0/30
THALLIUM	0/4											
THORIUM, TOTA L	1/2	9.58	9.58	Und	9.58	9.58(d)	na	na	na	na	na	f
URANIUM, TOTAL	36/36	5.94	563	Log	50.7	68.0(b)	na	Y	na	na	Y	a
VANADIUM	4/4	25.4	38.8	Und	34.0	38.8(d)	na	Y	na	Y	Y	a
ZINC	4/4	59.2	432	Und	161	432(d)	na	Y	na	Y	Y	a
Volatile Organics (ug/kg)												
METHYLENE CHLORIDE	2/4	6.00	6.00	Und	6.00	6.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	1/4	57.0	57.0	Und	57.0	57.0(d)	na	na	na	na	na	e
BENZO(A)PYRENE	1/4	47.0	47.0	Und	47.0	47.0(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1/4	55.0	55.0	Und	55.0	55.0(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/4	64.0	64.0	Und	64.0	64.0(d)	na	na	na	na	na	e
CHRYSENE	1/4	66.0	66.0	Und	66.0	66.0(d)	na	na	na	na	na	e
PHENANTHRENE	1/4	59.0	59.0	Und	59.0	59.0(d)	na	na	na	na	na	e
PYRENE	1/4	110	110	Und	110	110(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 15
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTHERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	1/1	2.70	2.70	Und	2.70	2.70(d)	na	na	na	Y	Y	a	
URANIUM-234	1/1	2.90	2.90	Und	2.90	2.90(d)	na	na	na	Y	Y	a	
THORIUM-230	1/1	2.00	2.00	Und	2.00	2.00(d)	na	na	na	Y	Y	a	
RADIUM-226	1/1	1.10	1.10	Und	1.10	1.10(d)	na	na	na	N	N	b	
URANIUM-235/236	0/1												
THORIUM-232	1/1	1.00	1.00	Und	1.00	1.00(d)	na	na	na	N	N	b	
RADIUM-228	1/1	1.20	1.20	Und	1.20	1.20(d)	na	na	na	N	Y	c	
THORIUM-228	1/1	1.30	1.30	Und	1.30	1.30(d)	na	na	na	N	Y	c	
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	1/1	1.90	1.90	Und	1.90	1.90(d)	na	na	Y	Y	Y	a	
TECHNETIUM-99	0/1												
RUTHENIUM-106	0/1												
CESIUM-137	1/1	0.600	0.600	Und	0.600	0.600(d)	na	na	na	N	Y	c	
Metals (mg/kg)													
URANIUM, TOTAL	1/1	8.32	8.32	Und	8.32	8.32(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 16
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WESTERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	2/2	1.89	3.60	Und	2.74	3.60(d)	na	na	na	Y	Y	a
URANIUM-234	2/2	0.934	2.60	Und	1.77	2.60(d)	na	na	na	Y	Y	a
THORIUM-230	2/2	1.22	1.40	Und	1.31	1.40(d)	na	na	na	N	N	b
RADIUM-226	1/1	0.900	0.900	Und	0.900	0.900(d)	na	na	na	N	N	b
THORIUM-232	2/2	0.730	1.00	Und	0.865	1.00(d)	na	na	na	N	N	b
URANIUM-235/236	0/2											
RADIUM-228	0/1											
THORIUM-228	2/2	1.20	1.48	Und	1.34	1.48(d)	na	na	na	Y	Y	a
NEPTUNIUM-237	0/2											
PLUTONIUM-239/240	0/2											
PLUTONIUM-238	0/2											
STRONTIUM-90	2/2	1.50	3.62	Und	2.56	3.62(d)	na	na	Y	Y	Y	a
TECHNETIUM-99	0/2											
RUTHENIUM-106	0/1											
CESIUM-137	1/1	0.700	0.700	Und	0.700	0.700(d)	na	na	na	N	Y	a
Metals (mg/kg)												
THORIUM, TOTAL	1/1	6.59	6.59	Und	6.59	6.59(d)	na	na	na	na	na	f
URANIUM, TOTAL	1/1	11.0	11.0	Und	11.0	11.0(d)	na	na	na	Y	Y	a

000586

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 17
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	30/30	1.40	6.40	Norm	3.82	4.24(a)	na	Y	na	Y	Y	a
URANIUM-234	30/30	1.40	5.80	Norm	3.41	3.81(a)	na	Y	na	Y	Y	a
URANIUM -235/236	0/30											
THORIUM-230	30/30	1.00	2.70	Und	1.62	2.52(c)	na	Y	na	Y	Y	a
RADIUM-226	24/28	0.500	1.10	Und	0.840	1.00(c)	na	Y*	na	N	N	b, d
THORIUM-232	26/30	0.700	1.40	Norm	1.02	1.01(a)	na	N	na	Y	N	d
RADIUM-228	23/28	0.800	1.30	Norm	1.04	1.00(a)	na	Y*	na	Y	N	b, d
THORIUM-228	30/30	0.700	1.74	Norm	1.14	1.22(a)	N	na	na	Y	Y	a
NEPTUNIUM-237	0/27											
PLUTONIUM-239/240	0/27											
PLUTONIUM-238	0/27											
STRONTIUM-90	11/27	0.600	1.00	Und	0.746	1.00(d)	na	na	Y	Y	Y	a
TECHNETIUM-99	1/27	1.30	1.30	Und	1.30	1.30(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/28											
CESIUM-137	28/28	0.300	1.60	Log	0.762	0.858(b)	na	Y	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	3/3	8600	11900	Und	10500	11900(d)	na	na	na	Y	Y	a
ANTIMONY	0/3											
ARSENIC	3/3	2.90	4.30	Und	3.60	4.30(d)	na	na	na	N	N	b
BARIUM	3/3	67.8	131	Und	101	131(d)	na	na	na	Y	Y	a
BERYLLIUM	1/3	0.740	0.740	Und	0.740	0.740(d)	na	na	Y	Y	Y	a
CADMIUM	2/3	1.60	1.70	Und	1.65	1.70(d)	na	na	Y	Y	Y	a
CHROMIUM	3/3	14.7	17.2	Und	16.2	17.2(d)	na	na	na	Y	Y	a
COBALT	3/3	9.00	16.5	Und	12.7	16.5(d)	na	na	na	Y	Y	a
COPPER	3/3	14.7	20.8	Und	17.6	20.8(d)	na	na	na	Y	Y	a
CYANIDE	1/3	0.420	0.420	Und	0.420	0.420(d)	na	na	na	Y	Y	a
LEAD	3/3	12.7	28.1	Und	22.4	28.1(d)	na	na	na	Y	Y	a
MAGNESIUM	3/3	2780	16200	Und	7730	16200(d)	na	na	na	Y	Y	a
MANGANESE	3/3	570	1190	Und	852	1190(d)	na	na	na	N	Y	c
MERCURY	0/3											
MOLYBDENUM	1/3	11.7	11.7	Und	11.7	11.7	na	na	na	na	na	c Background 0/30

000588

TABLE A. IV - 17
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	3/3	16.1	21.6	Und	19.6	21.6(d)	na	na	na	Y	Y	a
SELENIUM	1/3	0.320	0.320	Und	0.320	0.320(d)	na	na	Y*	N	N	b, d
SILVER	0/3											
THALLIUM	0/3											
THORIUM, TOTAL	1/5	10.8	10.8	Und	10.8	10.8(d)	na	na	na	na	na	f
URANIUM, TOTAL	30/30	4.45	19.4	Norm	11.6	12.9(a)	na	Y	na	Y	Y	a
VANADIUM	3/3	16.8	24.2	Und	20.7	24.2(d)	na	na	na	N	N	b
ZINC	3/3	47.4	80.4	Und	63.3	80.4(d)	na	na	na	Y	Y	a

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 18
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
OFF PROPERTY: INNER CONTOUR
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	33/34	0.400	9.40	Log	2.33	2.85(b)	na	Y	na	na	Y	a
URANIUM-234	34/34	0.500	8.90	Und	2.18	7.10(c)	na	Y	na	na	Y	a
THORIUM-230	19/19	0.300	3.52	Log	1.41	1.88(b)	na	N	na	Y	Y	a
RADIUM-226	17/21	0.300	1.90	Und	0.924	1.25(c)	na	Y	na	Y	Y	a
URANIUM-235/236	1/34	0.600	0.600	Und	0.600	0.600(d)	na	na	Y*	na	Y	a, c
THORIUM-232	18/19	0.300	1.40	Log	0.798	0.965(b)	na	Y*	na	Y	N	b, d
RADIUM-228	12/21	0.600	1.40	Norm	0.959	0.809(a)	na	Y	na	Y	Y	a
THORIUM-228	17/19	0.300	1.60	Norm	0.891	1.00(a)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/10											
PLUTONIUM-239/240	1/15	0.600	0.600	Und	0.600	0.600(d)	na	na	na	na	na	f
PLUTONIUM-238	0/15											
STRONTIUM-90	1/18	0.510	0.510	Und	0.510	0.510(d)	na	na	N	Y	Y	a
TECHNETIUM-99	1/19	1.80	1.80	Und	1.80	1.80(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/11											
CESIUM-137	6/19	0.240	0.500	Und	0.332	0.500(d)	na	Y*	na	N	N	b, d
Metals (mg/kg)												
ALUMINUM	3/3	6790	9590	Und	8480	9590(d)	na	na	na	N	N	b
ANTIMONY	0/3											
ARSENIC	3/3	1.90	5.30	Und	3.70	5.30(d)	na	na	na	N	N	b
BARIUM	3/3	54.6	237	Und	137	237(d)	na	na	na	Y	Y	a
BERYLLIUM	0/3											
CADMIUM	0/3											
CHROMIUM	3/3	8.90	12.1	Und	10.8	12.1(d)	na	na	na	N	N	b
COBALT	3/3	10.6	31.6	Und	17.7	31.6(d)	na	na	na	Y	Y	a
COPPER	3/3	8.90	16.8	Und	11.9	16.8(d)	na	na	na	Y	Y	a
CYANIDE	3/3	0.380	0.490	Und	0.433	0.490(d)	na	na	na	Y	Y	a
LEAD	3/3	16.9	28.5	Und	21.4	28.5(d)	na	na	na	Y	Y	a
MANGANESE	3/3	504	3420	Und	1810	3420(d)	na	na	na	Y	Y	a
MERCURY	0/3											
MOLYBDENUM	0/2											
NICKEL	3/3	7.00	11.7	Und	9.57	11.7(d)	na	na	na	N	N	b

TABLE A. IV - 18
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
OFF PROPERTY: INNER CONTOUR
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	0/3											
SILICON	3/3	256	1290	Und	932	1290(d)	na	na	na	N	N	b
SILVER	0/3											
THALLIUM	1/3	0.320	0.320	Und	0.320	0.320(d)	na	na	Y	Y	N	b, d
THORIUM, TOTAL	7/7	4.34	10.9	Log	6.83	8.84(b)	na	na	na	na	na	f
URANIUM, TOTAL	41/41	2.20	28.3	Log	7.86	9.53(b)	na	Y	na	na	Y	a
VANADIUM	3/3	15.6	33.4	Und	25.3	33.4(d)	na	na	na	Y	Y	a
ZINC	3/3	39.1	115	Und	67.0	115(d)	na	na	na	Y	Y	a
Volatile Organics (ug/kg)												
TETRACHLOROETHENE	1/3	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	1/3	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(A)PYRENE	1/3	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1/3	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/3	150	150	Und	150	150(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	2/3	46.0	75.0	Und	60.5	75.0(d)	na	na	na	na	na	e
CHRYSENE	1/3	160	160	Und	160	160(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/3	67.0	67.0	Und	67.0	67.0(d)	na	na	na	na	na	e
PHENANTHRENE	1/3	270	270	Und	270	270(d)	na	na	na	na	na	e
PYRENE	1/3	280	280	Und	280	280(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 19
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
OFF PROPERTY: OUTER CONTOUR
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	2/2	0.900	0.900	Und	0.900	0.900(d)	na	na	na	N	N	b	
URANIUM-234	2/2	0.900	1.20	Und	1.05	1.20(d)	na	na	na	N	N	b	
URANIUM-235/236	0/2												
Metals (mg/kg)													
URANIUM, TOTAL	2/2	2.96	2.96	Und	2.96	2.96(d)	na	na	na	N	N	b	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000595

TABLE A. IV - 20
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 1
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	14/14	0.900	7.80	Log	3.28	4.54(b)	na	Y	na	Y	Y	a
URANIUM-234	14/14	0.700	6.20	Log	2.62	3.67(b)	na	Y	na	Y	Y	a
THORIUM-230	15/15	0.800	3.14	Log	1.72	2.11(b)	na	N	na	Y	Y	a
RADIUM-226	15/15	0.300	1.20	Und	0.920	1.20(d)	na	Y*	na	N	N	b, d
URANIUM-235/236	1/13	1.60	1.60	Und	1.60	1.60(d)	na	na	Y	Y	Y	a
THORIUM-232	14/15	0.500	1.24	Und	1.02	1.24(d)	na	N	na	N	N	b
RADIUM-228	12/15	0.600	1.35	Norm	1.06	1.07(a)	na	N	na	Y	N	d
THORIUM-228	14/15	0.600	13.6	Log	2.56	4.20(b)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/8											
PLUTONIUM-239/240	0/15											
PLUTONIUM-238	0/15											
STRONTIUM-90	4/13	0.600	2.50	Und	1.23	2.50(d)	na	na	N	Y	Y	a
TECHNETIUM-99	0/13											
RUTHENIUM-106	0/14											
CESIUM-137	11/15	0.33	1.00	Log	0.546	0.781(b)	na	N	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	17/17	4080	13400	Norm	9030	10200(a)	na	N	na	Y	Y	a
ANTIMONY	0/17											
ARSENIC	17/17	2.40	5.80	Log	4.08	4.52(b)	na	N	na	N	N	b
BARIUM	17/17	37.4	185	Log	89.3	108(b)	na	Y	na	Y	Y	a
BERYLLIUM	8/17	0.610	1.70	Und	1.01	1.70(d)	na	na	Y	Y	Y	a
BORON	1/1	14.3	14.3	Und	14.3	14.3(d)	na	na	na	na	na	f
CADMIUM	5/17	0.510	1.90	Und	1.48	1.90(d)	na	na	N	Y	Y	a
CHROMIUM	17/17	5.90	19.4	Norm	12.6	14.2(a)	na	Y	na	Y	Y	a
COBALT	17/17	5.10	17.9	Norm	10.8	12.1(a)	N	na	na	Y	Y	a
COPPER	17/17	6.80	23.6	Log	13.1	15.4(b)	na	Y	na	Y	Y	a
CYANIDE	6/17	0.150	1.70	Und	0.480	1.70(d)	na	Y	na	Y	Y	a
LEAD	14/14	12.7	33.3	Log	20.6	23.9(b)	na	Y	na	Y	Y	a
MAGNESIUM	17/17	1230	22500	Und	4460	22500(d)	na	Y	na	Y	Y	a
MANGANESE	17/17	294	1470	Log	857	1060(b)	Y	na	na	Y	Y	a
MERCURY	0/17											

000596

TABLE A. IV - 20
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 1
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
MOLYBDENUM	6/17	6.90	13.3	Und	10.1	13.3(d)	na	na	na	na	Y	c Background - 0/30
NICKEL	17/17	6.20	25.8	Log	14.0	17.1(b)	Y	na	na	Y	Y	a
SELENIUM	4/15	0.480	0.770	Und	0.583	0.770(d)	na	na	Y	Y	Y	a
SILVER	0/17											
THALLIUM	1/17	0.670	0.670	Und	0.670	0.670(d)	na	na	N	Y	Y	a
THORIUM, TOTAL	7/8	8.74	11.2	Norm	10.3	11.2(d)	na	N	na	N	N	b
URANIUM, TOTAL	16/16	1.00	26.0	Log	10.4	19.3(b)	na	Y	na	Y	Y	a
VANADIUM	17/17	12.2	28.8	Norm	20.4	22.4(a)	na	N	na	Y	N	d
ZINC	15/17	28.5	137	Log	61.9	78.9(b)	na	Y	na	Y	Y	a
Semivolatile Organics (ug/kg)												
BIS(2-ETHYLHEXYL)PHTHALATE	3/17	57.0	65.0	Und	62.0	65.0(d)	na	na	na	na	na	e
CHRYSENE	1/17	40.0	40.0	Und	40.0	40.0(d)	na	na	na	na	na	e
PHENANTHRENE	2/17	45.0	65.0	Und	55.0	65.0(d)	na	na	na	na	na	e
PYRENE	2/17	63.0	65.0	Und	64.0	65.0(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 21
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 2
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	14/14	2.52	18.1	Norm	11.5	13.9(a)	na	Y	na	Y	Y	a	
URANIUM-234	14/14	2.36	17.4	Norm	10.5	12.9(a)	na	Y	na	Y	Y	a	
THORIUM-230	14/14	1.30	3.20	Norm	2.23	2.46(a)	na	Y	na	Y	Y	a	
RADIUM-226	13/14	0.900	1.20	Und	1.05	1.20(d)	na	Y*	na	N	N	b, d	
URANIUM-235/236	12/14	0.600	1.30	Norm	0.963	1.02(a)	na	Y	na	Y	Y	a	
THORIUM-232	13/14	0.800	1.60	Norm	1.11	1.21(a)	na	N	na	Y	Y	a	
RADIUM-228	12/14	1.00	1.40	Norm	1.21	1.25(a)	na	N	na	Y	Y	a	
THORIUM-228	14/14	0.800	2.56	Log	1.55	1.84(b)	na	Y	na	Y	Y	a	
NEPTUNIUM-237	0/5												
PLUTONIUM-239/240	0/14												
PLUTONIUM-238	0/14												
STRONTIUM-90	7/14	0.600	2.80	Log	1.34	1.50(b)	na	na	Y	Y	Y	a	
TECHNETIUM-99	0/6												
RUTHENIUM-106	0/14												
CESIUM-137	13/14	0.220	1.00	Norm	0.702	0.797(a)	na	Y	na	Y	Y	a	
Metals (mg/kg)													
ALUMINUM	7/7	1300	9350	Und	7190	9350(d)	na	N	na	N	N	b	
ANTIMONY	2/7	2.80	3.70	Und	3.25	3.70(d)	na	na	na	na	Y	c	Background - 0/22
ARSENIC	7/7	1.90	8.10	Norm	4.93	6.38(a)	N	na	na	N	N	b	
BARIUM	7/7	16.1	105	Norm	73.2	95.4(a)	na	N	na	Y	Y	a	
BERYLLIUM	2/7	0.480	0.530	Und	0.505	0.530(d)	na	na	Y	Y	Y	a	
CADMIUM	1/7	1.60	1.60	Und	1.60	1.60(d)	na	na	N	Y	Y	a	
CHROMIUM	6/7	3.20	15.8	Und	11.3	15.8(d)	na	N	na	N	N	b	
COBALT	6/7	7.60	12.0	Und	9.47	12.0(d)	na	N	na	N	N	b	
COPPER	7/7	3.80	12.5	Norm	9.10	11.2(a)	N	na	na	N	N	b	
CYANIDE	3/7	0.200	0.350	Und	0.290	0.350(d)	na	Y	na	Y	Y	a	
LEAD	6/6	13.3	27.4	Und	20.6	27.4(d)	na	Y	na	Y	Y	a	
MAGNESIUM	7/7	1200	59100	Und	9790	59100(d)	na	N	na	Y	Y	a	
MANGANESE	6/6	506	1210	Und	795	1210(d)	na	N	na	N	Y	a, c	
MERCURY	0/7												
MOLYBDENUM	2/7	7.90	8.30	Und	8.10	8.30(d)	na	na	na	na	Y	c	Background - 0/30

TABLE A. IV - 21
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 2
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	7/7	3.80	12.1	Norm	9.21	11.6(a)	na	N	na	N	N	b	
SELENIUM	1/6	0.510	0.510	Und	0.510	0.510(d)	na	na	N	Y	N	d	
SILVER	1/7	0.480	0.480	Und	0.480	0.480(d)	na	na	na	na	Y	c	Background 0/30
THALLIUM	1/7	0.750	0.750	Und	0.750	0.750(d)	na	na	N	Y	Y	a	
THORIUM, TOTAL	2/2	8.59	8.79	Und	8.69	8.79(d)	na	na	na	na	na	f	
URANIUM, TOTAL	16/16	8.44	89.0	Log	41.9	63.9(b)	na	Y	na	Y	Y	a	
VANADIUM	7/7	11.4	42.8	Norm	25.8	32.8(a)	na	Y	na	Y	Y	a	
ZINC	7/7	15.4	58.2	Norm	35.9	46.9(a)	na	N	na	N	N	b	
Volatile Organics (ug/kg)													
METHYLENE CHLORIDE	2/7	6.00	11.0	Und	8.50	11.0(d)	na	na	na	na	na	e	
Semivolatile Organics (ug/kg)													
BENZO(A)ANTHRACENE	1/6	48.0	48.0	Und	48.0	48.0(d)	na	na	na	na	na	e	
BENZO(A)PYRENE	1/6	51.0	51.0	Und	51.0	51.0(d)	na	na	na	na	na	e	
BENZO(B)FLUORANTHENE	1/6	50.0	50.0	Und	50.0	50.0(d)	na	na	na	na	na	e	
BENZO(K)FLUORANTHENE	1/6	56.0	56.0	Und	56.0	56.0(d)	na	na	na	na	na	e	
BIS(2-ETHYLHEXYL)PHTHALATE	1/6	45.0	45.0	Und	45.0	45.0(d)	na	na	na	na	na	e	
CHRYSENE	1/6	59.0	59.0	Und	59.0	59.0(d)	na	na	na	na	na	e	
PHENANTHRENE	1/6	41.0	41.0	Und	41.0	41.0(d)	na	na	na	na	na	e	
PYRENE	1/6	82.0	82.0	Und	82.0	82.0(d)	na	na	na	na	na	e	

000800

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

ns not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

5697

TABLE A. IV - 22
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 3
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	170/170	0.300	1850	Und	51.3	302(c)	na	Y	na	na	Y	a	
URANIUM-234	167/167	0.200	2900	Log	36.2	31.5(b)	na	Y	na	na	Y	a	
THORIUM-230	172/183	0.200	229	Und	10.3	44.8(c)	na	Y	na	na	Y	a	
RADIUM-226	124/130	0.300	75.1	Und	2.97	10.3(c)	na	Y	na	na	Y	a	
LEAD-210	2/2	19.0	37.1	Und	28.0	37.1(d)	na	na	na	Y	Y	a	
POLONIUM-210	9/9	1.46	84.5	Log	32.5	84.5(d)	na	na	na	na	na	f	
URANIUM-235/236	106/176	0.118	49.3	Und	2.79	5.40(c)	na	Y	na	na	Y	a	
THORIUM-232	151/173	0.190	38.0	Und	1.68	5.20(c)	na	Y	na	na	Y	a	
RADIUM-228	89/130	0 600	30.5	Und	1.66	2.00(c)	na	Y	na	na	Y	a	
THORIUM-228	161/174	0.256	62.7	Und	2.36	6.58(c)	na	N	na	na	Y	c	
NEPTUNIUM-237	8/135	0.327	1.10	Und	0.724	0.597(c)	na	na	na	na	na	f	
PLUTONIUM-239/240	13/161	0.215	2.90	Und	0.948	0.600(c)	na	na	na	na	na	f	
PLUTONIUM-238	10/161	0.242	4.10	Und	1.33	0.242(e)	na	na	na	na	na	f	
STRONTIUM-90	51/164	0.600	6.50	Und	1.72	2.90(c)	na	na	Y	na	Y	a	
TECHNETIUM-99	14/160	1.10	93.0	Und	13.5	4.80(c)	na	na	na	na	Y	c	Background - 0/30
RUTHENIUM-106	3/135	2.25	10.6	Und	5.29	2.25(e)	na	na	na	na	Y	c	Background - 0/30
CESIUM-137	91/157	0.230	2.10	Log	0.695	0.644(b)	N	na	na	na	Y	c	
ACTINIUM-227	4/10	0.650	3.95	Und	2.15	3.95(d)	na	na	Y	Y	Y	a	
PROTACTINIUM-231	1/10	5.04	5.04	Und	5.04	5.04(d)	na	na	na	na	na	f	
RADIUM-224	10/10	1.05	2.10	Log	1.36	1.54(b)	na	Y	na	Y	Y	a	
THORIUM-234	9/10	13.6	86.2	Log	34.9	55.6(b)	na	na	na	na	na	f	
Metals (mg/kg)													
ALUMINUM	99/99	2390	22500	Und	9040	13700(c)	na	Y	na	na	Y	a	
ANTIMONY	19/57	2.80	32.3	Und	21.4	30.1(c)	na	na	na	na	Y	c	Background - 0/22
ARSENIC	94/95	1.50	32.5	Und	7.21	22.1(c)	na	Y	na	na	Y	a	
BARIUM	99/99	31.4	157	Log	75.6	80.6(b)	na	Y	na	na	Y	a	
BERYLLIUM	57/99	0.410	2.10	Log	0.822	0.795(b)	na	na	Y	na	Y	a	
CADMIUM	31/99	1.30	7.60	Und	4.22	5.80(c)	na	na	N	na	Y	c	
CHROMIUM	98/99	6.40	42.8	Log	14.5	15.2(b)	na	Y	na	na	Y	a	
COBALT	98/99	3.30	22.2	Log	9.29	9.88(b)	na	Y*	na	na	N	b, d	
COPPER	94/99	6.20	52.9	Und	17.2	26.9(c)	na	Y	na	na	Y	a	

000602

TABLE A. IV - 22
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 3
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
CYANIDE	37/92	0.110	4.30	Und	0.485	0.690(c)	na	N	na	na	Y	c	
LEAD	76/77	8.60	2180	Und	131	693(c)	na	Y	na	na	Y	a	
MAGNESIUM	99/99	1200	65300	Und	14300	34400(c)	na	Y	na	na	Y	a	
MANGANESE	92/92	142	2150	Und	631	1350(c)	na	N	na	na	N	b	
MERCURY	4/99	0.060	6.30	Und	1.76	0.120(c)	na	na	N	na	Y	c	
MOLYBDENUM	34/96	2.20	8.50	Und	4.84	7.50(c)	na	na	na	na	Y	c	Background - 0/30
NICKEL	87/99	5.50	41.3	Log	19.4	20.0(b)	na	Y	na	na	Y	a	
SELENIUM	16/79	0.240	1.50	Und	0.578	0.840(c)	na	na	Y	na	Y	a	
SILVER	47/97	0.470	10.4	Und	6.04	9.70(c)	na	na	na	na	na	c	Background - 0/30
THALLIUM	4/98	0.260	0.510	Und	0.370	0.280(c)	na	na	N	na	N	b	
THORIUM, TOTAL	59/80	1.73	347	Und	21.8	60.2(c)	na	na	na	na	na	f	
URANIUM, TOTAL	179/179	1.50	5530	Log	149	178(b)	na	Y	na	na	Y	a	
VANADIUM	99/99	9.50	49.0	Log	24.1	25.5(b)	na	Y	na	na	Y	a	
ZINC	94/99	24.5	2150	Und	94.1	189(c)	na	Y	na	na	Y	a	
Volatile Organics (ug/kg)													
BENZENE	1/56	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e	
METHYLENE CHLORIDE	9/56	1.00	220	Und	34.6	220(d)	na	na	na	na	na	e	
TETRACHLOROETHENE	3/56	2.00	170	Und	58.0	170(d)	na	na	na	na	na	e	
TRICHLOROETHENE	3/56	4.00	6.00	Und	4.67	6.00(d)	na	na	na	na	na	e	
XYLENES, TOTAL	1/56	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e	
Semivolatile Organics (ug/kg)													
BENZO(A)ANTHRACENE	16/57	27.0	2700	Und	387	2700(d)	na	na	na	na	na	e	
BENZO(A)PYRENE	9/56	42.00	1600	Und	545	1600(d)	na	na	na	na	na	e	
BENZO(B)FLUORANTHENE	15/57	39.0	7700	Und	892	7700(d)	na	na	na	na	na	e	
BENZO(K)FLUORANTHENE	11/57	31.0	1300	Und	245	1300(d)	na	na	na	na	na	e	
BIS(2-ETHYLHEXYL)PHTHALATE	20/57	43.0	3700	Und	603	3700(d)	na	na	na	na	na	e	
CHRYSENE	14/57	46.0	4700	Und	581	4700(d)	na	na	na	na	na	e	
DIBENZO(A,H)ANTHRACENE	5/57	39.0	400	Und	162	400(d)	na	na	na	na	na	e	
INDENO(1,2,3-CD)PYRENE	7/57	40.0	1500	Und	380	1500(d)	na	na	na	na	na	e	
PHENANTHRENE	12/57	48.0	6800	Und	869	6800(d)	na	na	na	na	na	e	
PYRENE	20/57	39.0	6800	Und	687	6800(d)	na	na	na	na	na	e	

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TABLE A. IV - 22
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 3
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Pesticides/PCBs (ug/kg)													
AROCLOR-1254	9/63	11.0	590	Und	109	590(d)	na	na	na	na	na	e	
AROCLOR-1260	3/63	130	1300	Und	557	1300(d)	na	na	na	na	na	e	
Dioxins/Furans (ng/g)													
OCTACHLORODIBENZO-P-DIOXINS	4/14	240	900	Und	430	900(d)	na	na	na	na	na	e	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 23
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 4
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	16/16	0.300	4.70	Norm	2.30	2.86(a)	na	Y	na	Y	Y	a
URANIUM-234	16/16	0.300	4.63	Norm	2.35	3.00(a)	na	Y	na	Y	Y	a
THORIUM-230	16/16	0.700	2.10	Norm	1.46	1.69(a)	N	na	na	Y	Y	a
RADIUM-226	14/16	0.400	1.24	Norm	0.872	0.939(a)	na	Y*	na	N	N	b, d
URANIUM-235/236	1/16	0.810	0.810	Und	0.810	0.810(d)	na	na	Y	Y	Y	a
THORIUM-232	15/16	0.580	1.50	Norm	0.891	0.978(a)	na	Y*	na	Y	N	b, d
RADIUM-228	13/16	0.590	1.32	Norm	0.899	0.930(a)	na	Y*	na	Y	N	b, d
THORIUM-228	15/16	0.410	2.06	Log	1.11	1.48(b)	na	N	na	Y	Y	a
NEPTUNIUM-237	0/10											
PLUTONIUM-239/240	1/16	0.600	0.600	Und	0.600	0.600(d)	na	na	na	na	na	f
PLUTONIUM-238	0/16											
STRONTIUM-90	11/15	0.960	3.01	Log	1.67	2.40(b)	na	na	Y	Y	Y	a
TECHNETIUM-99	1/13	1.30	1.30	Und	1.30	1.30(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/13											
CESIUM-137	11/15	0.230	1.10	Log	0.510	0.716(b)	na	N	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	12/12	2220	11600	Norm	6280	7500(a)	na	Y*	na	N	N	b, d
ANTIMONY	1/8	10.6	10.6	Und	10.6	10.6(d)	na	na	na	na	na	c Background - 0/22
ARSENIC	12/12	2.80	8.70	Log	4.85	6.10(b)	na	N	na	Y	Y	a
BARIUM	12/12	32.1	81.5	Log	54.4	63.5(b)	N	na	na	N	N	b
BERYLLIUM	4/12	0.350	1.40	Und	0.695	1.40(d)	na	na	Y	Y	Y	a
CADMIUM	2/12	0.490	2.80	Und	1.64	2.80(d)	na	na	N	Y	Y	a
CHROMIUM	12/12	4.60	17.7	Log	9.94	12.7(b)	N	na	na	Y	N	d
COBALT	12/12	3.70	11.3	Norm	8.70	10.1(a)	N	na	na	N	N	b
COPPER	12/12	5.00	18.0	Log	10.8	13.4(b)	na	Y	na	Y	Y	a
CYANIDE	7/11	0.280	0.910	Log	0.441	0.676(b)	na	Y	na	Y	Y	a
LEAD	10/10	9.20	61.5	Log	22.1	31.6(b)	na	N	na	Y	Y	a
MAGNESIUM	12/12	1090	29800	Und	8830	29800(d)	na	N	na	Y	Y	a
MANGANESE	11/11	397	979	Log	582	688(b)	na	N	na	N	N	b
MERCURY	0/12											
MOLYBDENUM	5/12	7.20	8.50	Und	7.98	8.50(d)	na	na	na	na	Y	c Background - 0/30

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TABLE A. IV - 23
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAZING AREA 4
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	11/12	9.20	21.0	Norm	12.4	13.9(a)	na	N	na	Y	Y	a
SELENIUM	3/10	0.230	0.800	Und	0.513	0.800(d)	na	na	Y	Y	Y	a
SILVER	1/12	8.70	8.70	Und	8.70	8.70(d)	na	na	na	na	Y	c Background - 0/30
THALLIUM	0/12											
THORIUM, TOTAL	6/6	4.08	9.94	Und	7.42	9.94(d)	na	na	na	na	na	f
URANIUM, TOTAL,	16/17	3.70	23.7	Norm	10.4	12.2(a)	na	Y	na	Y	Y	a
VANADIUM	12/12	10.9	27.5	Log	17.4	20.5(b)	Y*	na	na	N	N	b, d
ZINC	11/12	23.2	96.8	Log	45.5	58.4(b)	na	N	na	Y	Y	a
Volatile Organics (ug/kg)												
TETRACHLOROETHENE	2/11	2.00	3.00	Und	2.50	3.00(d)	na	na	na	na	na	e
TRICHLOROETHENE	1/11	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	1/11	48.0	48.0	Und	48.0	48.0(d)	na	na	na	na	na	e
BENZO(A)PYRENE	1/11	60.0	60.0	Und	60.0	60.0(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1/11	39.0	39.0	Und	39.0	39.0(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/11	53.0	53.0	Und	53.0	53.0(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	3/11	51.0	700	Und	267	700(d)	na	na	na	na	na	e
CHRYSENE	1/11	61.0	61.0	Und	61.0	61.0(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/11	35.0	35.0	Und	35.0	35.0(d)	na	na	na	na	na	e
PENTACHLOROPHENOL	0/11											
PHENANTHRENE	1/11	67.0	67.0	Und	67.0	67.0(d)	na	na	na	na	na	e
PYRENE	4/11	47.0	100	Und	65.5	100(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 24
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	3/3	1.30	1.51	Und	1.40	1.51(d)	na	na	na	Y	Y	a
URANIUM-234	3/3	1.10	1.52	Und	1.24	1.52(d)	na	na	na	Y	Y	a
THORIUM-230	3/3	1.70	2.51	Und	2.10	2.51(d)	na	na	na	Y	Y	a
RADIUM-226	3/3	0.871	1.25	Und	1.01	1.25(d)	na	na	na	N	N	b
URANIUM-235/236	0/3											
THORIUM-232	3/3	0.618	1.40	Und	0.906	1.40(d)	na	na	na	Y	N	b, d
RADIUM-228	3/3	0.670	1.10	Und	0.889	1.10(d)	na	na	na	N	N	b
THORIUM-228	2/3	1.30	1.60	Und	1.45	1.60(d)	na	na	na	Y	Y	a
NEPTUNIUM-237	0/3											
PLUTONIUM-239/240	0/3											
PLUTONIUM-238	0/3											
STRONTIUM-90	0/3											
TECHNETIUM-99	0/3											
RUTHENIUM-106	0/3											
CESIUM-137	0/3											
Metals (mg/kg)												
THORIUM, TOTAL	1/1	5.58	5.58	Und	5.58	5.58(d)	na	na	na	na	na	f
URANIUM, TOTAL	3/3	3.00	12.0	Und	8.29	12.0(d)	na	na	na	Y	Y	a

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 25
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
KNOLLMAN FARM
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	6/6	2.00	3.60	Und	2.80	3.60(d)	na	Y	na	Y	Y	a
URANIUM-234	6/6	2.00	4.20	Und	2.93	4.20(d)	na	Y	na	Y	Y	a
THORIUM-230	6/6	1.50	2.00	Und	1.80	2.00(d)	na	Y	na	Y	Y	a
RADIUM-226	4/6	1.00	1.20	Und	1.10	1.20(d)	na	Y*	na	N	N	b, d
URANIUM-235/236	0/6											
THORIUM-232	6/6	0.900	1.00	Und	0.933	1.00(d)	na	N	na	N	N	b
RADIUM-228	6/6	0.900	1.20	Und	0.983	1.20(d)	na	N	na	N	N	b
THORIUM-228	6/6	0.800	1.30	Und	1.05	1.30(d)	na	N	na	N	N	b
NEPTUNIUM-237	0/6											
PLUTONIUM-239/240	0/6											
PLUTONIUM-238	0/6											
STRONTIUM-90	5/6	0.700	2.20	Und	1.50	2.20(d)	na	na	Y	Y	Y	a
TECHNETIUM-99	0/6											
RUTHENIUM-106	0/6											
CESIUM-137	6/6	0.300	0.700	Und	0.483	0.700(d)	na	N	na	N	Y	a, c
Metals (mg/kg)												
URANIUM, TOTAL	6/6	6.24	11.0	Und	8.62	11.0(d)	na	Y	na	Y	Y	a

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 26
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST FARM
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	22/22	1.60	10.6	Log	4.90	6.77(b)	na	Y	na	Y	Y	a
URANIUM-234	22/22	1.10	10.2	Log	4.63	6.71(b)	na	Y	na	Y	Y	a
THORIUM-230	19/19	1.00	2.10	Norm	1.65	1.77(a)	na	Y	na	Y	Y	a
RADIUM-226	13/18	0.500	1.90	Log	0.892	1.12(b)	na	Y*	na	Y	N	b, d
URANIUM-235/236	3/22	0.600	0.700	Und	0.667	0.700(d)	na	na	Y	Y	Y	a
THORIUM-232	16/19	0.600	1.40	Norm	1.04	1.06(a)	na	N	na	Y	N	b, d
RADIUM-228	14/18	0.600	1.30	Norm	1.02	1.01(a)	na	N	na	Y	N	b, d
THORIUM-228	19/19	0.700	1.30	Und	1.03	1.30(d)	na	N	na	N	N	b
NEPTUNIUM-237	0/17											
PLUTONIUM-239/240	0/18											
PLUTONIUM-238	0/18											
STRONTIUM-90	4/17	0.900	5.20	Und	2.68	5.20(d)	na	na	N	Y	Y	a
TECHNETIUM-99	2/15	1.30	1.80	Und	1.55	1.80(d)	na	na	na	na	Y	c Background - 0/30
RUTHENIUM-106	0/17											
CESIUM-137	18/18	0.400	1.10	Norm	0.778	0.872(a)	na	Y	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	1/1	9070	9070	Und	9070	9070(d)	na	na	na	N	Y	c
ANTIMONY	0/1											
ARSENIC	1/1	5.30	5.30	Und	5.30	5.30(d)	na	na	na	N	N	b
BARIUM	1/1	119	119	Und	119	119(d)	na	na	na	Y	Y	a
BERYLLIUM	0/1											
CADMIUM	0/1											
CHROMIUM	1/1	11.4	11.4	Und	11.4	11.4(d)	na	na	na	N	N	b
COBALT	1/1	10.8	10.8	Und	10.8	10.8(d)	na	na	na	N	N	b
COPPER	1/1	16.8	16.8	Und	16.8	16.8(d)	na	na	na	Y	Y	a
CYANIDE	1/1	0.430	0.430	Und	0.430	0.430(d)	na	na	na	Y	Y	a
LEAD	1/1	28.5	28.5	Und	28.5	28.5(d)	na	na	na	Y	Y	a
MAGNESIUM	1/1	3060	3060	Und	3060	3060(d)	na	na	na	Y	Y	a
MANGANESE	1/1	1510	1510	Und	1510	1510(d)	na	na	na	Y	Y	a
MERCURY	0/1											
NICKEL	1/1	11.7	11.7	Und	11.7	11.7(d)	na	na	na	N	N	b

TABLE A. IV - 26
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST FARM
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	0/1											
SILVER	0/1											
THALLIUM	1/1	0.320	0.320	Und	0.320	0.320(d)	na	na	Y*	Y	N	b, d
THORIUM , TOTAL	0/3											
URANIUM, TOTAL	22/22	5.05	31.9	Log	15.0	20.2(b)	na	Y	na	Y	Y	a
VANADIUM	1/1	26.8	26.8	Und	26.8	26.8(d)	na	na	na	N	Y	c
ZINC	1/1	115	115	Und	115	115(d)	na	na	na	Y	Y	a
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	1/1	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(A)PYRENE	1/1	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1/1	110	110	Und	110	110(d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1/1	150	150	Und	150	150(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	1/1	75.0	75.0	Und	75.0	75.0(d)	na	na	na	na	na	e
CHRYSENE	1/1	160	160	Und	160	160(d)	na	na	na	na	na	e
FLUORANTHENE	1/1	390	390	Und	390	390(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/1	67.0	67.0	Und	67.0	67.0(d)	na	na	na	na	na	e
PHENANTHRENE	1/1	270	270	Und	270	270(d)	na	na	na	na	na	e
PYRENE	1/1	280	280	Und	280	280(d)	na	na	na	na	na	e

000814

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000615

TABLE A. IV - 27
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVERBANK
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	1/2	0.600	0.600	Und	0.600	0.600(d)	na	na	na	N	N	b
URANIUM-234	2/2	0.700	1.20	Und	0.950	1.20(d)	na	na	na	N	N	b
THORIUM-230	4/4	0.300	1.20	Und	0.825	1.20(d)	na	Y*	na	N	N	b, d
RADIUM-226	2/5	0.600	0.900	Und	0.750	0.900(d)	na	Y*	na	N	N	b, d
URANIUM-235/236	0/2											
THORIUM-232	4/4	0.300	0.700	Und	0.500	0.700(d)	na	Y*	na	N	N	b, d
RADIUM-228	1/5	1.40	1.40	Und	1.40	1.40(d)	na	na	Y	Y	Y	a
THORIUM-228	4/4	0.300	0.700	Und	0.550	0.700(d)	na	Y*	na	N	N	b, d
PLUTONIUM-239/240	0/2											
PLUTONIUM-238	0/2											
STRONTIUM-90	0/5											
TECHNETIUM-99	0/5											
RUTHENIUM-106	0/1											
CESIUM-137	1/5	0.300	0.300	Und	0.300	0.300(d)	na	na	Y*	N	N	b, d
Metals (mg/kg)												
URANIUM, TOTAL	4/4	2.20	3.70	Und	3.02	3.70(d)	na	N	na	N	N	b

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000817

TABLE A. IV - 28
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
OUTFALL LINE/GREAT MIAMI RIVER
SURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/g)													
URANIUM-238	1/1	9.60	9.60	Und	9.60	9.60(d)	na	na	na	Y	Y	a	
URANIUM-234	1/1	8.40	8.40	Und	8.40	8.40(d)	na	na	na	Y	Y	a	
THORIUM-230	1/1	2.20	2.20	Und	2.20	2.20(d)	na	na	na	Y	Y	a	
RADIUM-226	1/1	0.900	0.900	Und	0.900	0.900(d)	na	na	na	N	N	b	
URANIUM-235/236	0/1												
THORIUM-232	1/1	1.20	1.20	Und	1.20	1.20(d)	na	na	na	N	Y	c	
RADIUM-228	1/1	0.800	0.800	Und	0.800	0.800(d)	na	na	na	N	N	b	
THORIUM-228	1/1	1.40	1.40	Und	1.40	1.40(d)	na	na	na	N	Y	c	
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/2												
RUTHENIUM-106	0/2												
CESIUM-137	1/2	0.300	0.300	Und	0.300	0.300(d)	na	na	na	N	N	b	
Metals (mg/kg)													
THORIUM, TOTAL	1/1	6.00	6.00	Und	6.00	6.00(d)	na	na	na	na	Y	f	
URANIUM, TOTAL	2/2	13.9	28.9	Und	21.4	28.9(d)	na	na	na	Y	Y	a	

000618

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

ns not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000619

TABLE A. IV - 29
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
ADMINISTRATION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 2											
NEPTUNIUM-237	0 / 2											
PLUTONIUM-238	0 / 2											
PLUTONIUM-239/240	0 / 2											
RADIUM-226	5 / 5	0.300	2.00	Und	1.05	2.00 (d)	na	na	na	na	na	f
RADIUM-228	3 / 5	0.600	0.870	Und	0.536	0.870 (d)	na	na	na	na	na	f
RUTHENIUM-106	0 / 2											
STRONTIUM-90	0 / 2											
TECHNETIUM-99	0 / 1											
THORIUM-228	4 / 4	0.800	1.10	Und	0.950	1.10 (d)	na	na	na	na	na	f
THORIUM-230	4 / 4	0.800	1.30	Und	1.11	1.30 (d)	na	na	na	na	na	f
THORIUM-232	4 / 4	0.627	1.00	Und	0.807	1.00 (d)	na	na	na	na	na	f
URANIUM-234	4 / 4	0.600	4.30	Und	2.56	4.30 (d)	na	na	na	na	na	f
URANIUM-235/236	1 / 4	0.200	0.200	Und	0.088	0.200 (d)	na	na	na	na	na	f
URANIUM-238	4 / 4	0.700	8.90	Und	3.72	8.90 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	3 / 3	9370	15300	Und	11900	15300 (d)	na	na	na	na	na	f
ANTIMONY	0 / 2											
ARSENIC	3 / 3	5.20	16.3	Und	9.40	16.3 (d)	na	na	na	na	na	f
BARIUM	3 / 3	109	307	Und	192	307 (d)	na	na	na	na	na	f
BERYLLIUM	2 / 3	1.20	1.70	Und	1.13	1.70 (d)	na	na	na	na	na	f
CADMIUM	1 / 3	2.30	2.30	Und	1.17	2.30 (d)	na	na	na	na	na	f
CHROMIUM	3 / 3	12.3	20.4	Und	16.0	20.4 (d)	na	na	na	na	na	f
COBALT	3 / 3	9.50	15.9	Und	12.7	15.9 (d)	na	na	na	na	na	f
COPPER	3 / 3	12.7	21.3	Und	18.1	21.3 (d)	na	na	na	na	na	f
CYANIDE	0 / 3											
LEAD	3 / 3	9.50	19.1	Und	15.2	19.1 (d)	na	na	na	na	na	f
MAGNESIUM	3 / 3	27300	51100	Und	37400	51100 (d)	na	na	na	na	na	f
MANGANESE	3 / 3	725	2050	Und	1300	2050 (d)	na	na	na	na	na	f
MERCURY	0 / 3											
MOLYBDENUM	0 / 3											
NICKEL	3 / 3	23.0	34.8	Und	29.8	34.8 (d)	na	na	na	na	na	f
SELENIUM	0 / 2											

000620

TABLE A. IV - 29
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
ADMINISTRATION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
SILICON	3 / 3	33.7	79.9	Und	62.4	79.9 (d)	na	na	na	na	na	f
SILVER	0 / 3											
THORIUM, TOTAL	4 / 4	7.40	9.38	Und	8.20	9.38 (d)	na	na	na	na	na	f
THALLIUM	2 / 3	0.320	0.350	Und	0.263	0.350 (d)	na	na	na	na	na	f
URANIUM, TOTAL	9 / 9	3.10	24.8	Log	12.1	20.3 (d)	na	na	na	na	na	f
VANADIUM	3 / 3	26.7	31.3	Und	28.6	31.3 (d)	na	na	na	na	na	f
ZINC	3 / 3	62.9	85.1	Und	71.5	85.1 (d)	na	na	na	na	na	f
Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	1 / 5	5.00	5.00	Und	5.30	5.00 (d)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	1 / 3	150	150	Und	188	150 (d)	na	na	na	na	na	e
BENZO(A)PYRENE	1 / 3	190	190	Und	202	190 (d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1 / 3	320	320	Und	245	320 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 3	280	280	Und	232	280 (d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	3 / 3	61.0	160	Und	102	160 (d)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1 / 3	42.0	42.0	Und	152	42.0 (d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1 / 3	170	170	Und	195	170 (d)	na	na	na	na	na	e
METHYLENE CHLORIDE	3 / 5	15.0	39.0	Und	18.4	39.0 (d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000622

TABLE A. IV - 30
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
MAIN PRODUCTION AREA / PROCESS AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	Y-reject Ho N-accept Ho na-not applicable	Y-reject Ho N-accept Ho na-not applicable	Test of Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Y-Yes N-No na-not applicable	Above ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	3 / 42	0.260	2.94	Und	0.195	0.260 (d)	na	na	na	na	na	f
NEPTUNIUM-237	0 / 44											
PLUTONIUM-238	4 / 43	1.27	158	Und	4.08	1.67 (c)	na	na	na	na	na	f
PLUTONIUM-239/240	2 / 43	0.885	1.41	Und	0.339	0.885 (c)	na	na	na	na	na	f
RADIUM-226	61 / 62	0.450	5.91	Und	1.09	3.05 (c)	na	na	na	na	na	f
RADIUM-228	41 / 62	0.564	17.6	Und	1.05	2.14 (c)	na	na	na	na	na	f
RUTHENIUM-106	0 / 42											
STRONTIUM-90	20 / 41	0.570	47.6	Und	2.70	9.40 (c)	na	na	na	na	na	f
TECHNETIUM-99	13 / 39	1.24	205	Und	7.43	37.9 (c)	na	na	na	na	na	f
THORIUM-228	60 / 70	0.500	14.6	Und	1.21	2.46 (c)	na	na	na	na	na	f
THORIUM-230	66 / 75	0.640	72.2	Und	2.94	7.54 (c)	na	na	na	na	na	f
THORIUM-232	59 / 76	0.600	8.07	Und	0.977	2.19 (c)	na	na	na	na	na	f
URANIUM-234	63 / 63	0.600	319	Und	42.0	177 (c)	na	na	na	na	na	f
URANIUM-235/236	39 / 63	0.200	36.2	Und	3.86	14.8 (c)	na	na	na	na	na	f
URANIUM-238	63 / 63	0.400	317	Und	41.7	164 (c)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	32 / 32	1890	24700	Norm	12000	13300 (a)	na	na	na	na	na	f
ANTIMONY	4 / 20	1.20	22.0	Und	4.17	20.2 (c)	na	na	na	na	na	f
ARSENIC	32 / 32	2.80	17.3	Log	7.50	9.26 (b)	na	na	na	na	na	f
BARIUM	32 / 32	12.8	3610	Und	221	223 (c)	na	na	na	na	na	f
BERYLLIUM	27 / 31	0.480	3.90	Log	1.19	1.45 (b)	na	na	na	na	na	f
CADMIUM	17 / 28	0.920	7.90	Und	2.45	7.00 (c)	na	na	na	na	na	f
CHROMIUM	32 / 32	9.10	32.9	Log	18.7	20.6 (b)	na	na	na	na	na	f
COBALT	31 / 32	6.10	23.6	Log	12.9	14.8 (b)	na	na	na	na	na	f
COPPER	31 / 32	12.4	28.7	Log	21.9	23.6 (b)	na	na	na	na	na	f
CYANIDE	9 / 29	0.110	1.40	Und	0.250	0.650 (c)	na	na	na	na	na	f
LEAD	32 / 32	3.90	31.8	Und	16.3	30.0 (c)	na	na	na	na	na	f
MAGNESIUM	32 / 32	3880	70100	Norm	28500	33400 (a)	na	na	na	na	na	f
MANGANESE	32 / 32	209	3890	Log	903	1150 (b)	na	na	na	na	na	f
MERCURY	4 / 32	0.060	2.30	Und	0.125	0.240 (c)	na	na	na	na	na	f
MOLYBDENUM	9 / 32	2.40	5.00	Und	2.41	4.60 (c)	na	na	na	na	na	f
NICKEL	29 / 32	17.7	52.4	Log	27.2	30.4 (b)	na	na	na	na	na	f
SELENIUM	6 / 28	0.600	2.80	Und	0.483	1.20 (c)	na	na	na	na	na	f

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TABLE A. IV - 30
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
MAIN PRODUCTION AREA / PROCESS AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	Y-reject Ho N-accept Ho na-not applicable	Y-reject Ho N-accept Ho na-not applicable	Test of Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Y-Yes N-No na-not applicable	Above ground Y-Yes N-No (4)	Comment (5)
SILICON	13 / 16	32.9	1220	Log	413	1220 (d)	na	na	na	na	na	f
SILVER	13 / 30	1.00	31.1	Und	3.10	9.00 (c)	na	na	na	na	na	f
THALLIUM	7 / 31	0.240	0.570	Und	0.220	0.380 (c)	na	na	na	na	na	f
THORIUM, TOTAL	75 / 81	1.23	72.8	Log	10.7	12.3 (b)	na	na	na	na	na	f
URANIUM, TOTAL	116 / 118	1.99	39100	Und	444	629 (c)	na	na	na	na	na	f
VANADIUM	31 / 32	10.4	49.7	Norm	27.1	29.9 (a)	na	na	na	na	na	f
ZINC	31 / 31	18.6	164	Norm	71.5	80.3 (a)	na	na	na	na	na	f
Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	12 / 47	2.00	1500	Und	60.2	68.0 (c)	na	na	na	na	na	e
1,1-DICHLOROETHENE	9 / 47	1.00	54.0	Und	24.4	25.0 (c)	na	na	na	na	na	e
AROCLOR-1254	4 / 26	40.0	740	Und	111	350 (c)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	3 / 33	55.0	100	Und	210	84.0 (c)	na	na	na	na	na	e
BENZO(A)PYRENE	2 / 33	63.0	100	Und	212	63.0 (e)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	4 / 33	60.0	110	Und	200	110 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2 / 33	98.0	120	Und	215	98.0 (e)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	13 / 33	47.0	1100	Und	265	860 (c)	na	na	na	na	na	e
CHLOROFORM	4 / 47	3.00	130	Und	24.8	3.00 (e)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	2 / 33	78.0	99.0	Und	214	78.0 (e)	na	na	na	na	na	e
METHYLENE CHLORIDE	8 / 46	3.00	100	Und	86.5	25.0 (c)	na	na	na	na	na	e
TETRACHLOROETHENE	11 / 47	2.00	21000	Und	835	520 (c)	na	na	na	na	na	e
TRICHLOROETHENE	12 / 46	3.00	4400	Und	179	570 (c)	na	na	na	na	na	e
VINYL CHLORIDE	2 / 47	3.00	9.00	Und	43.1	3.00 (e)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 31
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE PRODUCTION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 4											
NEPTUNIUM-237	0 / 3											
PLUTONIUM-238	0 / 5											
PLUTONIUM-239/240	0 / 5											
RADIUM-226	10 / 11	0.300	1.70	Norm	0.757	1.03 (a)	na	na	na	na	na	f
RADIUM-228	6 / 11	0.600	23.9	Und	2.68	23.9 (d)	na	na	na	na	na	f
RUTHENIUM-106	0 / 3											
STRONTIUM-90	3 / 4	1.42	2.50	Und	1.42	2.50 (d)	na	na	na	na	na	f
TECHNETIUM-99	1 / 3	1.80	1.80	Und	0.933	1.80 (d)	na	na	na	na	na	f
THORIUM-228	9 / 11	0.300	2.76	Norm	1.03	1.42 (a)	na	na	na	na	na	f
THORIUM-230	10 / 11	0.500	7.70	Und	1.73	7.70 (d)	na	na	na	na	na	f
THORIUM-232	8 / 11	0.600	2.55	Log	0.923	1.66 (b)	na	na	na	na	na	f
URANIUM-234	10 / 10	0.600	21.7	Und	6.54	21.7 (d)	na	na	na	na	na	f
URANIUM-235/236	3 / 9	1.00	1.70	Und	0.517	1.70 (d)	na	na	na	na	na	f
URANIUM-238	10 / 10	0.600	20.8	Und	6.40	20.8 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	45 / 45	2300	142000	Und	12200	17000 (c)	na	na	na	na	na	f
ANTIMONY	0 / 6											
ARSENIC	40 / 40	2.80	15.0	Log	6.07	6.73 (b)	na	na	na	na	na	f
BARIUM	45 / 45	30.3	1200	Und	107	206 (c)	na	na	na	na	na	f
BERYLLIUM	41 / 44	0.520	2.90	Und	0.975	1.40 (c)	na	na	na	na	na	f
CADMIUM	39 / 45	1.50	8.00	Norm	4.07	4.57 (a)	na	na	na	na	na	f
CHROMIUM	39 / 39	11.5	87.7	Und	20.3	37.6 (c)	na	na	na	na	na	f
COBALT	45 / 45	6.20	28.1	Log	12.0	13.1 (b)	na	na	na	na	na	f
COPPER	43 / 44	12.0	43.9	Log	21.2	22.6 (b)	na	na	na	na	na	f
CYANIDE	14 / 45	0.130	8.60	Und	0.355	0.520 (c)	na	na	na	na	na	f
LEAD	45 / 45	4.40	22.0	Log	11.5	12.7 (b)	na	na	na	na	na	f
MAGNESIUM	45 / 45	3570	61800	Und	27400	45600 (c)	na	na	na	na	na	f
MANGANESE	45 / 45	203	4200	Und	751	1960 (c)	na	na	na	na	na	f
MERCURY	1 / 45	0.090	0.090	Und	0.058	0.090 (d)	na	na	na	na	na	f
MOLYBDENUM	27 / 43	2.70	7.10	Norm	3.34	3.77 (a)	na	na	na	na	na	f
NICKEL	37 / 39	16.4	54.9	Log	28.1	30.3 (b)	na	na	na	na	na	f
SELENIUM	6 / 42	0.320	1.60	Und	0.319	0.620 (c)	na	na	na	na	na	f

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TABLE A. IV - 31
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE PRODUCTION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
SILICON	6 / 6	58.7	680	Und	394.6	680 (d)	na	na	na	na	na	f
SILVER	37 / 43	0.410	30.5	Und	5.85	23.7 (c)	na	na	na	na	na	f
THALLIUM	2 / 45	0.480	0.500	Und	0.222	0.480 (e)	na	na	na	na	na	f
THORIUM, TOTAL	11 / 14	3.36	23.0	Log	7.13	11.7 (b)	na	na	na	na	na	f
URANIUM, TOTAL	26 / 27	2.40	190	Log	25.7	46.2 (b)	na	na	na	na	na	f
VANADIUM	45 / 45	15.4	42.5	Log	23.7	25.2 (b)	na	na	na	na	na	f
ZINC	45 / 45	23.3	218	Und	54.7	78.5 (c)	na	na	na	na	na	f
Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	17 / 46	2.00	6600	Und	186	200 (c)	na	na	na	na	na	e
1,1-DICHLOROETHENE	11 / 46	1.00	460	Und	29.2	17.0 (c)	na	na	na	na	na	e
AROCLOR-1254	9 / 46	26.0	1200	Und	180	200 (c)	na	na	na	na	na	e
AROCLOR-1260	1 / 46	210	210	Und	252	210 (d)	na	na	na	na	na	e
BENZENE	1 / 46	1.00	1.00	Und	17.6	1.00 (d)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	4 / 45	38.0	5100	Und	326	54.0 (c)	na	na	na	na	na	e
BENZO(A)PYRENE	2 / 45	220	3400	Und	291	220 (c)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2 / 45	39.0	6000	Und	344	39.0 (c)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 45	250	250	Und	220	250 (d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	21 / 45	38.0	9100	Und	972	6000 (c)	na	na	na	na	na	e
CHLOROFORM	3 / 46	2.00	160	Und	21.2	2.00 (e)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1 / 45	1100	1100	Und	239	1100 (d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	2 / 45	130	2200	Und	262	130 (e)	na	na	na	na	na	e
METHYLENE CHLORIDE	5 / 46	3.00	59.0	Und	61.8	5.00 (c)	na	na	na	na	na	e
TETRACHLOROETHENE	13 / 46	1.00	2800	Und	125	1000 (c)	na	na	na	na	na	e
TRICHLOROETHENE	11 / 46	1.00	150000	Und	3510	1300 (c)	na	na	na	na	na	e
VINYL CHLORIDE	1 / 46	110	110	Und	36.2	110 (d)	na	na	na	na	na	e

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 32
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF THE PRODUCTION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	1 / 14	0.366	0.366	Und	0.119	0.366 (d)	na	na	na	na	na	f
NEPTUNIUM-237	0 / 14											
PLUTONIUM-238	1 / 15	0.937	0.937	Und	0.196	0.937 (d)	na	na	na	na	na	f
PLUTONIUM-239/240	2 / 15	0.622	2.44	Und	0.317	2.44 (d)	na	na	na	na	na	f
RADIUM-226	16 / 17	0.300	3.30	Und	1.07	3.30 (d)	na	na	na	na	na	f
RADIUM-228	15 / 18	0.630	8.62	Log	1.64	2.74 (b)	na	na	na	na	na	f
RUTHENIUM-106	0 / 14											
STRONTIUM-90	5 / 14	0.800	6.65	Und	1.39	6.65 (d)	na	na	na	na	na	f
TECHNETIUM-99	1 / 14	1.40	1.40	Und	0.564	1.40 (d)	na	na	na	na	na	f
THORIUM-228	11 / 11	0.600	1.50	Norm	1.03	1.19 (a)	na	na	na	na	na	f
THORIUM-230	11 / 11	0.800	2.75	Log	1.56	2.02 (b)	na	na	na	na	na	f
THORIUM-232	11 / 11	0.600	5.56	Und	1.35	5.56 (d)	na	na	na	na	na	f
URANIUM-234	16 / 16	0.700	10.3	Und	3.01	10.3 (d)	na	na	na	na	na	f
URANIUM-235/236	5 / 16	0.120	0.875	Und	0.259	0.875 (d)	na	na	na	na	na	f
URANIUM-238	16 / 16	0.900	16.1	Log	3.98	7.62 (b)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	21 / 21	2020	17400	Norm	9400	10700 (a)	na	na	na	na	na	f
ANTIMONY	0 / 5											
ARSENIC	17 / 17	3.40	18.7	Log	7.34	9.24 (b)	na	na	na	na	na	f
BARIUM	21 / 21	9.90	348	Log	83.6	124 (b)	na	na	na	na	na	f
BERYLLIUM	9 / 21	0.410	3.20	Und	0.729	2.70 (c)	na	na	na	na	na	f
CADMIUM	7 / 21	1.10	6.40	Und	1.39	4.80 (c)	na	na	na	na	na	f
CALCIUM	21 / 21	4200	159000	Norm	84200	104000 (a)	na	na	na	na	na	f
CHROMIUM	20 / 21	8.50	23.5	Norm	13.8	15.6 (a)	na	na	na	na	na	f
COBALT	20 / 21	4.60	30.2	Log	12.0	16.3 (b)	na	na	na	na	na	f
COPPER	18 / 21	9.50	30.1	Norm	15.9	18.4 (a)	na	na	na	na	na	f
CYANIDE	0 / 21											
IRON	21 / 21	5950	38900	Log	20500	24600 (b)	na	na	na	na	na	f
LEAD	21 / 21	4.40	19.13	Norm	11.2	12.8 (a)	na	na	na	na	na	f
MAGNESIUM	21 / 21	3320	52400	Norm	22400	27300 (a)	na	na	na	na	na	f
MANGANESE	21 / 21	232	2620	Und	647	1770 (c)	na	na	na	na	na	f
MERCURY	0 / 21											
MOLYBDENUM	12 / 20	4.40	10.0	Norm	4.80	5.84 (a)	na	na	na	na	na	f

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TABLE A. IV - 32
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHWEST CORNER OF THE PRODUCTION AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
NICKEL	19 / 21	11.3	66.2	Log	23.1	30.1 (b)	na	na	na	na	na	f
POTASSIUM	21 / 21	336	2140	Log	1217	1461 (b)	na	na	na	na	na	f
SELENIUM	2 / 18	0.490	1.00	Und	0.265	1.00 (d)	na	na	na	na	na	f
SILICON	16 / 16	123	930	Norm	521	621 (a)	na	na	na	na	na	f
SILVER	14 / 19	2.4	10.1	Und	4.28	10.1 (d)	na	na	na	na	na	f
SODIUM	19 / 21	67.1	1560	Log	258	336 (b)	na	na	na	na	na	f
THALLIUM	4 / 21	0.260	0.720	Und	0.266	0.650 (c)	na	na	na	na	na	f
THORIUM, TOTAL	12 / 12	3.90	50.2	Log	13.2	20.6 (b)	na	na	na	na	na	f
URANIUM, TOTAL	22 / 22	2.8	121	Log	18 8	30.8 (b)	na	na	na	na	na	f
VANADIUM	21 / 21	7.00	41 8	Log	23.7	28.2 (b)	na	na	na	na	na	f
ZINC	21 / 21	22 0	780	Und	102	391 (c)	na	na	na	na	na	f
Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	1 / 47	2.00	2.00	Und	3.99	2.00 (d)	na	na	na	na	na	e
AROCLOR-1254	1 / 20	120	120	Und	96.0	120 (d)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	6 / 47	85.0	740	Und	209	280 (c)	na	na	na	na	na	e
BENZO(A)PYRENE	4 / 47	190	620	Und	207	210 (c)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	5 / 47	110	1400	Und	236	510 (c)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 47	190	190	Und	196	190 (d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	19 / 44	42.0	3500	Und	290	770 (c)	na	na	na	na	na	e
CHLOROFORM	1 / 47	2.00	2.00	Und	4.04	2.00 (d)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	2 / 47	83	100	Und	192	83.0 (e)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	3 / 47	150	410	Und	200	150 (e)	na	na	na	na	na	e
METHYLENE CHLORIDE	5 / 47	1.00	38.0	Und	9.87	8.00 (c)	na	na	na	na	na	e
TETRACHLOROETHENE	2 / 47	3.00	3.00	Und	3.97	3.00 (d)	na	na	na	na	na	e
TRICHLOROETHENE	4 / 47	1.00	40.0	Und	4.94	7.00 (c)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 33
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
FIRE TRAINING AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Metals (mg/kg)												
ALUMINUM	9/9	8470	16800	Norm	12900	14800(a)	na	Y	na	Y	Y	a
ANTIMONY	0/8											
ARSENIC	9/9	4.80	10.0	Log	6.73	8.09(b)	na	Y	na	N	Y	a
BARIUM	9/9	69.2	156	Norm	115	132(a)	na	Y	na	Y	Y	a
BERYLLIUM	1/9	0.530	0.530	Und	0.530	0.530(d)	na	na	N	N	N	b
CADMIUM	8/9	2.60	4.20	Norm	3.39	3.72(a)	na	na	Y	Y	Y	a
CHROMIUM	9/9	13.0	24.3	Norm	19.7	22.0(a)	na	Y	na	Y	Y	a
COBALT	9/9	6.10	26.0	Norm	15.4	19.0(a)	na	Y	na	Y	Y	a
COPPER	9/9	11.4	21.5	Norm	16.7	18.7(a)	na	Y	na	Y	Y	a
CYANIDE	1/9	0.500	0.500	Und	0.500	0.500(d)	na	na	N	Y	Y	a
LEAD	9/9	14.8	71.0	Und	25.4	71.0(d)	na	Y	na	Y	Y	a
MAGNESIUM	9/9	2830	24600	Log	8720	16400(b)	na	Y*	na	N	N	b, d
MANGANESE	9/9	285	1080	Log	624	875(b)	na	N	na	N	Y	c
MERCURY	1/9	0.180	0.180	Und	0.180	0.180(d)	na	na	N	Y	N	b, d
MOLYBDENUM	0/9											
NICKEL	9/9	15.3	67.1	Norm	40.6	49.7(a)	na	Y	na	Y	Y	a
SELENIUM	0/9											
SILVER	4/9	2.80	5.60	Und	4.05	5.60(d)	na	na	na	na	Y	c Background - 0/51
THALLIUM	0/9											
THORIUM, TOTAL	8/8	7.00	136	Log	34.9	136(d)	na	Y	na	Y	Y	a
URANIUM, TOTAL	8/8	3.55	14.3	Norm	9.50	11.9(a)	na	Y	na	Y	Y	a
VANADIUM	9/9	20.4	25.8	Norm	24.1	25.3(a)	na	Y	na	N	Y	a
ZINC	9/9	47.3	75.3	Log	63.0	71.0(b)	na	Y	na	N	Y	a
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	1/9	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
CHLOROFORM	1/9	2.00	2.00	Und	2.00	2.00	na	na	na	na	na	e
TETRACHLOROETHENE	1/9	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
TRICHLOROETHENE	1/9	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)PYRENE	1/9	120	120	Und	120	120(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	2/9	96.0	180	Und	138	180(d)	na	na	na	na	na	e

TABLE A. IV - 33
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
FIRE TRAINING AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
INDENO(1,2,3-CD)PYRENE	1/9	120	120	Und	120	120(d)	na	na	na	na	na	e	
Pesticides/PCBs (ug/kg)													
AROCLOR-1260	3/9	240	2700	Und	1550	2700(d)	na	na	na	na	na	e	
Dioxins/Furans (ng/g)													
OCTACHLORODIBENZOFURAN	1/6	1500	1500	Und	1500	1500(d)	na	na	na	na	na	e	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 34
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SEWAGE TREATMENT AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	6/7	0.600	32.7	Und	9.47	32.7(d)	na	N	na	Y	Y	a
URANIUM-234	4/6	1.03	32.7	Und	13.4	32.7(d)	na	N	na	Y	Y	a
THORIUM-230	6/6	0.900	13.9	Und	3.68	13.9(d)	na	N	na	Y	Y	a
RADIUM-226	7/7	0.400	1.31	Norm	0.872	1.11(a)	na	N	na	N	N	b
URANIUM-235/236	3/7	0.200	4.36	Und	2.05	4.36(d)	na	Y	na	Y	Y	a
THORIUM-232	5/6	0.600	3.21	Und	1.42	3.21(d)	na	N	na	Y	Y	a
RADIUM-228	5/7	0.740	1.66	Und	1.16	1.66(d)	na	N	na	Y	Y	a
THORIUM-228	4/6	1.05	2.96	Und	1.81	2.96(d)	na	N	na	Y	Y	a
NEPTUNIUM-237	1/6	0.288	0.288	Und	0.288	0.288(d)	na	na	na	na	na	f
PLUTONIUM-239/240	0/6											
PLUTONIUM-238	0/6											
STRONTIUM-90	4/6	0.700	10.1	Und	5.06	10.1(d)	na	na	Y	Y	Y	a
TECHNETIUM-99	3/5	3.15	3.63	Und	3.46	3.63(d)	na	na	na	na	Y	c Background - 0/51
RUTHENIUM-106	0/7											
CESIUM-137	1/7	0.490	0.490	Und	0.490	0.490(d)	na	na	na	na	Y	c Background - 0/51
Metals (mg/kg)												
ALUMINUM	4/4	14300	27000	Und	21700	27000(d)	na	Y	na	Y	Y	a
ANTIMONY	0/4											
ARSENIC	1/1	9.10	9.10	Und	9.10	9.10(d)	na	N	na	N	Y	c
BARIUM	4/4	83.1	167	Und	134	167(d)	na	Y	na	Y	Y	a
BERYLLIUM	3/4	1.00	1.10	Und	1.07	1.10(d)	na	Y	na	Y	Y	a
CADMIUM	0/4											
CHROMIUM	4/4	16.8	31.1	Und	25.3	31.1(d)	na	Y	na	Y	Y	a
COBALT	4/4	9.00	13.9	Und	11.9	13.9(d)	na	Y	na	N	Y	a
COPPER	3/4	15.2	22.9	Und	19.3	22.9(d)	na	Y	na	Y	Y	a
CYANIDE	0/4											
LEAD	4/4	11.6	21.4	Und	15.6	21.4(d)	na	Y	na	Y	Y	a
MAGNESIUM	4/4	4600	28300	Und	10800	28300(d)	na	N	na	N	N	b
MANGANESE	4/4	570	904	Und	771	904(d)	na	Y	na	N	Y	a
MERCURY	2/4	0.060	0.130	Und	0.0950	0.130(d)	na	na	Y	Y	Y	a
MOLYBDENUM	0/4											

TABLE A. IV - 34
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SEWAGE TREATMENT AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	4/4	21.6	30.1	Und	26.4	30.1(d)	na	Y	na	N	Y	a	
SELENIUM	0/4												
SILVER	0/4												
THALLIUM	0/4												
THORIUM, TOTAL	4/6	6.98	29.0	Und	14.7	29.0(d)	na	N	na	Y	Y	a	
URANIUM, TOTAL	9/9	1.00	214	Log	40.5	214(d)	na	Y	na	Y	Y	a	
VANADIUM	4/4	26.5	51.3	Und	42.6	51.3(d)	na	Y	na	N	Y	a	
ZINC	4/4	44.8	89.9	Und	71.7	89.9(d)	na	Y	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 35
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WASTE STORAGE/DISPOSAL AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	50/52	0.400	15.1	Und	2.24	7.80(c)	na	Y	na	na	Y	a
URANIUM-234	49/52	0.400	7.50	Log	1.66	1.92(b)	na	Y	na	na	Y	a
THORIUM-230	55/56	0.500	3.74	Log	1.38	1.52(b)	na	Y	na	na	Y	a
RADIUM-226	51/54	0.300	137	Und	4.04	4.60(c)	na	N	na	na	Y	c
LEAD-210	23/27	1.01	34.0	Log	6.51	10.7(b)	na	Y	na	Y	Y	a
POLONIUM-210	38/38	1.15	34.4	Und	5.15	20.9(c)	na	na	na	na	na	f
URANIUM-235/236	9/51	0.200	0.500	Und	0.278	0.500(d)	na	na	Y	na	Y	a
THORIUM-232	45/56	0.300	1.40	Norm	0.831	0.797(a)	N	na	na	na	N	b
RADIUM-228	14/56	0.552	1.40	Und	0.861	1.10(c)	na	na	Y*	na	N	b, d
THORIUM-228	53/56	0 300	1.60	Norm	0.875	0.914(a)	na	N	na	na	N	b
NEPTUNIUM-237	0/17											
PLUTONIUM-239/240	10/48	0.300	5.50	Und	1.36	1.40(c)	na	na	na	na	na	f
PLUTONIUM-238	0/48											
STRONTIUM-90	5/46	0.511	2.80	Und	1.08	1.75(c)	na	na	N	na	Y	c
TECHNETIUM-99	9/52	1.40	18.6	Und	7.12	8.90(c)	na	na	na	na	Y	c Background - 0/51
RUTHENIUM-106	0/18											
CESIUM-137	6/54	0.300	1.50	Und	0.550	0.400(c)	na	na	na	na	Y	c Background - 0/51
ACTINIUM-227	0/1											
PROTACTINIUM-231	0/1											
RADIUM-224	1/1	1.33	1.33	Und	1.33	1.33(d)	na	Y	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	39/39	2620	87000	Log	14300	16400(b)	na	Y	na	na	Y	a
ANTIMONY	1/27	22.1	22.1	Und	22.1	22.1(d)	na	na	na	na	Y	c Background - 0/37
ARSENIC	37/37	2.70	74.2	Und	10.7	34.3(c)	na	Y	na	na	Y	a
BARIUM	39/39	15.4	872	Und	102	175(c)	na	Y	na	na	Y	a
BERYLLIUM	32/39	0.360	5.20	Log	1.38	1.55(b)	na	Y	na	na	Y	a
CADMIUM	13/39	1.20	4.30	Und	2.35	4.30(d)	na	na	Y	na	Y	a
CHROMIUM	39/39	6.20	115	Log	20.8	23.2(b)	na	Y	na	na	Y	a
COBALT	36/39	5.40	105	Und	14.0	22.8(c)	na	Y	na	na	Y	a
COPPER	33/38	12.0	171	Und	27.4	44.3(c)	na	Y	na	na	Y	a
CYANIDE	4/35	0.260	1.50	Und	0.668	1.50(d)	na	na	Y	na	Y	a

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TABLE A. IV - 35
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WASTE STORAGE/DISPOSAL AREA
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
LEAD	36/36	8.50	139	Und	23.0	65.2(c)	na	Y	na	na	Y	a
MAGNESIUM	39/39	2180	93200	Und	21600	41900(c)	na	N	na	na	N	b
MANGANESE	39/39	360	12200	Und	1100	2180(c)	na	Y	na	na	Y	a
MERCURY	1/39	0.0800	0.0800	Und	0.0800	0.0800(d)	na	na	N	na	N	b
MOLYBDENUM	12/36	3.50	11.1	Und	6.02	11.1(d)	na	na	Y	na	Y	a
NICKEL	37/39	10.6	186	Log	32.6	36.4(b)	na	Y	na	na	Y	a
SELENIUM	6/30	0.420	3.30	Und	1.25	3.30(d)	na	na	na	na	Y	c Background - 0/51
SILVER	12/35	2.70	17.6	Und	6.94	10.5(c)	na	na	na	na	Y	c Background - 0/51
THALLIUM	6/39	0.230	0.440	Und	0.312	0.440(d)	na	na	N	na	N	b
THORIUM, TOTAL	10/16	1.76	8.81	Norm	5.32	5.24(a)	na	Y*	na	N	N	b, d
URANIUM, TOTAL	54/55	2.00	132	Und	12.3	54.1(c)	na	Y	na	na	Y	a
VANADIUM	39/39	10.4	190	Log	34.7	38.8(b)	na	Y	na	na	Y	a
ZINC	38/39	37.3	486	Log	89.1	102(b)	na	Y	na	na	Y	a
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	1/21	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	3/21	9.00	37.0	Und	24.3	27.0(c)	na	na	na	na	na	e
TETRACHLOROETHENE	1/21	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
TRICHLOROETHENE	1/21	18.0	18.0	Und	18.0	18.0(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BENZO(A)ANTHRACENE	2/20	62.0	17000	Und	8530	17000(d)	na	na	na	na	na	e
BENZO(A)PYRENE	1/20	8600	8600	Und	8600	8600(d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2/20	150	23000	Und	11600	23000(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	10/20	62.0	3600	Log	766	2470(b)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1/20	1000	1000	Und	1000	1000(d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1/20	4900	4900	Und	4900	4900(d)	na	na	na	na	na	e
PHENANTHRENE	1/20	18000	18000	Und	18000	1800(d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 36
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME
SUBSURFACE SOIL

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	9/9	0.700	1.90	Log	1.08	1.41(b)	na	Y	na	na	Y	a
URANIUM-234	9/9	0.700	2.00	Log	1.15	1.56(b)	na	Y	na	na	Y	a
THORIUM-230	8/10	0.900	1.70	Norm	1.26	1.35(a)	N	na	na	na	N	b
RADIUM-226	8/10	0.304	1.90	Log	0.833	1.58(b)	na	Y	na	na	Y	a
URANIUM-235/236	0/9											
THORIUM-232	6/10	0.600	1.10	Und	0.902	1.10(d)	na	N	na	na	N	b
RADIUM-228	6/10	0.700	1.70	Und	1.03	1.70(d)	na	N	na	na	Y	c
THORIUM-228	8/10	0.600	2.15	Log	1.01	1.42(b)	na	N	na	na	Y	c
NEPTUNIUM-237	0/10											
PLUTONIUM-239/240	0/10											
PLUTONIUM-238	0/10											
STRONTIUM-90	2/10	0.600	1.58	Und	1.09	1.58(d)	na	na	Y	na	Y	a
TECHNETIUM-99	0/10											
RUTHENIUM-106	0/10											
CESIUM-137	0/10											
Metals (ug/kg)												
THORIUM, TOTAL	5/10	2.23	9.92	Und	6.59	9.92(d)	na	Y*	na	na	N	b, d
URANIUM, TOTAL	8/9	2.36	7.00	Norm	4.21	4.95(a)	na	Y	na	na	Y	a

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

ns not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 37
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PRODUCTION AREA (TYPE 1 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	97/97	0.300	18300	Und	997	8480(c)	na	Y	na	na	Y	a	
URANIUM-234	97/97	0.400	23100	Und	1110	10100(c)	na	Y	na	na	Y	a	
THORIUM-230	63/102	0.260	13.8	Log	1.86	1.51(b)	na	Y	na	na	Y	a	
RADIUM-226	50/94	1.10	8.30	Log	2.79	2.12(b)	na	Y	na	na	Y	a	
URANIUM-235/236	67/97	0.208	1850	Und	105	518(c)	na	na	na	na	Y	c	Background - 0/13
THORIUM-232	40/102	0.300	11.5	Und	1.55	2.91(c)	na	na	N	na	Y	c	
RADIUM-228	20/100	3.10	14.4	Und	5.00	5.70(c)	na	na	N	na	Y	c	
THORIUM-228	59/102	0.300	14.0	Log	1.42	1.12(b)	na	N	na	na	Y	c	
NEPTUNIUM-237	0/27												
PLUTONIUM-239/240	0/32												
PLUTONIUM-238	1/32	0.744	0.744	Und	0.744	0.744(d)	na	na	N	na	Y	c	
STRONTIUM-90	4/33	1.01	27.2	Und	8.25	3.45(c)	na	na	N	na	Y	c	
TECHNETIUM-99	41/92	17.2	6130	Und	566	1860(c)	na	na	Y	na	Y	a	
RUTHENIUM-106	0/20												
CESIUM-137	0/22												
Metals (mg/L)													
ALUMINUM	90/99	0.0662	10500	Und	142	122(c)	na	Y	na	na	Y	a	
ANTIMONY	9/96	0.0156	0.135	Und	0.0580	0.0842(c)	na	na	na	na	Y	c	Background - 0/2
ARSENIC	58/95	0.0011	0.101	Und	0.0069	0.0141(c)	na	N	na	na	Y	c	
BARIUM	94/95	0.0056	2.26	Log	0.237	0.284(b)	na	N	na	na	Y	c	
BERYLLIUM	18/90	0.0011	0.0282	Und	0.0068	0.0086(c)	na	na	na	na	Y	c	Background - 0/4
CADMIUM	26/99	0.0014	0.0700	Und	0.0123	0.0155(c)	na	na	na	na	Y	c	Background - 0/4
CHROMIUM	62/98	0.0054	0.312	Log	0.0672	0.0697(b)	na	na	Y	na	Y	a	
COBALT	48/95	0.0067	0.156	Log	0.0371	0.0271(b)	na	na	na	na	Y	c	Background - 0/5
COPPER	56/92	0.0042	0.392	Und	0.0878	0.275(c)	na	N	na	na	Y	c	
CYANIDE	10/120	0.0021	0.552	Und	0.0704	0.552(d)	na	na	na	na	Y	c	Background - 0/5
LEAD	66/96	0.0010	0.131	Log	0.0249	0.0318(b)	na	Y	na	na	Y	a	
MAGNESIUM	101/101	3.43	684	Und	107	328(c)	na	Y	na	na	Y	a	
MANGANESE	99/99	0.0448	14.6	Log	1.77	2.75(b)	na	Y	na	na	Y	a	
MERCURY	3/100	0.0002	0.0005	Und	0.0004	0.0002(e)	na	na	na	na	Y	c	Background - 0/5
MOLYBDENUM	11/45	0.0100	0.0730	Und	0.0279	0.0377(c)	na	na	na	na	Y	c	Background - 0/4

TABLE A. IV - 37
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PRODUCTION AREA (TYPE 1 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	55/96	0.0044	0.361	Log	0.0825	0.0669(b)	na	na	N	na	Y	c
SELENIUM	8/84	0.0011	0.0063	Und	0.0025	0.0063(d)	na	na	na	na	Y	c Background - 0/5
SILVER	17/98	0.0035	0.126	Und	0.0367	0.0547(c)	na	na	N	na	Y	c
THALLIUM	6/95	0.0010	0.337	Und	0.0573	0.337(d)	na	na	na	na	Y	c Background - 0/5
THORIUM, TOTAL	19/37	0.0015	0.104	Und	0.029	0.054(b)	na	na	Y	na	Y	a
URANIUM, TOTAL	180/180	0.0004	436	Log	8.24	59.6(b)	na	Y	na	na	Y	a
VANADIUM	65/96	0.0051	0.314	Und	0.0726	0.266(c)	na	na	Y	na	Y	a
ZINC	70/95	0.0092	0.981	Log	0.186	0.299(b)	na	N	na	na	Y	c
Volatile Organics (ug/L)												
1,1,1-TRICHLOROETHANE	36/136	0.500	310	Und	48.9	68.0(c)	na	na	na	na	na	e
1,1-DICHLOROETHANE	36/136	1.00	800	Und	56.6	72.0(c)	na	na	na	na	na	e
1,1-DICHLOROETHENE	19/136	1.00	270	Und	51.0	18.0(c)	na	na	na	na	na	e
1,2-DICHLOROETHANE	6/136	1.00	72	Und	36.7	72.0(d)	na	na	na	na	na	e
1,2-DICHLOROETHENE (TOTAL)	21/135	1.00	1000	Und	152	68.0(c)	na	na	na	na	na	e
2-BUTANONE	3/135	1.00	10.0	Und	5.67	6.00(c)	na	na	na	na	na	e
4-METHYL-2-PENTANONE	2/135	2.00	4.00	Und	3.00	4.00(d)	na	na	na	na	na	e
ACETONE	5/131	2.00	48	Und	16.4	13.0(c)	na	na	na	na	na	e
BENZENE	3/136	0.500	14.0	Und	5.03	14.0(d)	na	na	na	na	na	e
BROMOFORM	1/136	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
CARBON DISULFIDE	3/135	1.00	3.00	Und	2.00	3.00(d)	na	na	na	na	na	e
CARBON TETRACHLORIDE	1/136	21.0	21.0	Und	21.0	21.0(d)	na	na	na	na	na	e
CHLOROFORM	4/136	2.00	47.0	Und	21.5	47.0(d)	na	na	na	na	na	e
METHYLENE CHLORIDE	1/136	12.0	12.0	Und	12.0	12.0(d)	na	na	na	na	na	e
TETRACHLOROETHENE	16/136	0.700	2600	Und	213	7.00(c)	na	na	na	na	na	e
TOLUENE	4/136	2.00	50.0	Und	15.0	50.0(d)	na	na	na	na	na	e
TRICHLOROETHENE	21/136	1.00	10000	Und	949	170(c)	na	na	na	na	na	e
VINYL CHLORIDE	4/136	1.00	8.00	Und	5.75	8.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/L)												
2-CHLOROPHENOL	1/67	160	160	Und	160	160(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	5/68	1.00	6.00	Und	3.00	6.00(d)	na	na	na	na	na	e
N-NITROSO-DI-N-PROPYLAMINE	1/69	2.00	2.00	Und	2.00(d)	2.00(d)	na	na	na	na	na	e
PENTACHLOROPHENOL	1/67	94.0	94.0	Und	94.0	94.0(d)	na	na	na	na	na	e

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TABLE A. IV - 37
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PRODUCTION AREA (TYPE 1 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
TRIBUTYL PHOSPHATE	4/35	5.00	450	Und	156	110(c)	na	na	na	na	na	e	
General Chemistries (mg/L)													
AMMONIA	60/102	0.0490	5.33	Und	0.442	0.920(c)	na	N	na	na	N	b	
FLUORIDE	89/89	0.140	6.80	Und	0.609	1.25(c)	na	N	na	na	Y	c	
NITRATE	64/100	0.050	382	Log	23.1	45.8(b)	na	N	na	na	Y	c	
NITRATE/NITRITE	42/62	0.020	18.7	Und	2.12	7.80(c)	na	na	Y	na	Y	a	
SULFATE	90/90	2.30	610	Und	111	345(c)	na	Y	na	na	Y	a	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 38
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PRODUCTION AREA (TYPE 1 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	81/84	0.416	44100	Log	1640	12300(b)	na	na	na	na	na	f
URANIUM-234	84/84	0.300	42800	Log	1480	6960(b)	na	na	na	na	Y	c
THORIUM-230	35/86	0.251	24.3	Und	1,41	1.16(c)	na	N	na	na	Y	c
RADIUM-226	14/93	1.10	16.6	Und	2.65	1.80(c)	na	na	*Y	na	Y	a, c
URANIUM-235/236	58/84	0.300	2170	Log	132	457(b)	na	na	na	na	Y	c
THORIUM-232	10/85	0.242	1.00	Und	0.534	0.600(c)	na	na	*Y	na	Y	a, c
RADIUM-228	14/94	3.10	16.0	Und	5.90	5.50(c)	na	na	*Y	na	Y	a,c
THORIUM-228	18/86	0.300	4.29	Und	1.03	0.860(c)	na	na	*Y	na	Y	a, c
NEPTUNIUM-237	2/18	1.59	1.97	Und	178	1.97(d)	na	na	na	na	na	f
PLUTONIUM-239/240	1/22	0.506	0.506	Und	0.506	0.506(d)	na	na	na	na	na	f
PLUTONIUM-238	1/22	0.913	0.913	Und	0.913	0.913(d)	na	na	na	na	na	f
STRONTIUM-90	4/26	2.09	3.60	Und	3.08	3.44(c)	na	na	na	na	na	f
TECHNETIUM-99	36/82	15.1	3520	Und	464	1680(c)	na	N	na	na	Y	c
RUTHENIUM-106	0/25											
CESIUM-137	0/26											
Metals (mg/L)												
ALUMINUM	48/122	0.037	19.9	Und	1.20	1.27(c)	na	N	na	na	Y	c
ANTIMONY	10/117	0.0055	0.071	Und	0.047	0.0566(c)	na	na	*Y	na	Y	a, c
ARSENIC	25/118	0.0012	0.032	Und	0.0055	0.0065(c)	na	na	N	na	N	b
BARIUM	120/122	0.0075	0.537	Log	0.086	0.099(b)	na	N	na	na	N	b
BERYLLIUM	11/114	0.0012	0.0086	Und	0.0052	0.0056(c)	na	na	*Y	na	Y	a, c
BORON	1/1	0.427	0.427	Und	0.427	0.427(d)	na	na	na	na	na	f
CADMIUM	21/122	0.0027	0.014	Und	0.0061	0.0070(c)	na	na	N	na	Y	c
CHROMIUM	23/122	0.009	0.251	Und	0.078	0.119(c)	na	na	N	na	Y	c
COBALT	13/118	0.0037	0.037	Und	0.016	0.023(c)	na	na	na	na	Y	c Background - 0/7
COPPER	27/117	0.0034	0.298	Und	0.036	0.047(c)	na	na	N	na	Y	c
CYANIDE	2/71	0.0066	0.014	Und	0.010	0.014(d)	na	na	na	na	Y	c Background - 0/4
LEAD	23/117	0.0011	0.087	Und	0.0066	0.0043(c)	na	na	N	na	Y	c
MAGNESIUM	122/123	1.55	217	Und	50.4	98.9(c)	na	Y	na	na	Y	a
MANGANESE	113/121	0.0036	3.95	Log	0.527	1.57(b)	na	Y	na	na	Y	a
MERCURY	5/118	0.0002	0.0019	Und	0.0006	0.0002(e)	na	na	N	na	Y	c

TABLE A. IV - 38
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PRODUCTION AREA (TYPE 1 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
MOLYBDENUM	12/65	0.0051	1.42	Und	0.141	0.040(c)	na	na	N	na	Y	c	
NICKEL	24/119	0.0037	0.144	Und	0.045	0.066(c)	na	na	N	na	Y	c	
SELENIUM	9/109	0.0012	0.0062	Und	0.0029	0.0028(c)	na	na	na	na	Y	c	Background - 0/16
SILVER	21/120	0.0029	0.119	Und	0.047	0.062(c)	na	na	N	na	Y	c	
THALLIUM	2/117	0.0028	0.010	Und	0.0064	0.0028(e)	na	na	na	na	Y	c	Background - 0/5
THORIUM, TOTAL	6/27	0.0013	0.0088	Und	0.0051	0.0081(c)	na	na	na	na	na	f	
URANIUM, TOTAL	107/110	0.0003	129	Log	7.24	129(d)	na	na	na	na	Y	c	
VANADIUM	21/118	0.0032	0.215	Und	0.048	0.073(c)	na	na	N	na	Y	c	
ZINC	39/116	0.0033	0.156	Und	0.024	0.047(c)	na	Y	na	na	Y	a	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 39
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 1 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	5/5	1.20	97.2	Und	30.3	97.2(d)	na	Y	na	Y	Y	a
URANIUM-234	5/5	1.30	91.0	Und	28.9	91.0(d)	na	Y	na	Y	Y	a
THORIUM-230	4/4	0.300	1.50	Und	0.875	1.50(d)	na	N	na	Y	Y	a
RADIUM-226	4/5	1.50	2.70	Und	2.18	2.70(d)	na	Y	na	N	Y	a
URANIUM-235/236	3/5	0.300	4.20	Und	2.37	4.20(d)	na	na	na	na	Y	c Background - 0/13
THORIUM-232	3/4	0.300	0.900	Und	0.533	0.900(d)	na	na	Y	Y	Y	a
RADIUM-228	1/5	3.50	3.50	Und	3.50	3.50(d)	na	na	N	Y	Y	a
THORIUM-228	3/4	0.500	0.800	Und	0.667	0.800(d)	na	N	na	N	N	b
TECHNETIUM-99	4/5	106	2880	Und	876	2880(d)	na	na	Y	Y	Y	a
Metals (mg/L)												
ALUMINUM	5/6	3.00	35.3	Und	18.2	35.3(d)	na	Y	na	Y	Y	a
ANTIMONY	0/6											
ARSENIC	5/6	0.00280	0.00560	Und	0.00390	0.0056(d)	na	N	na	N	N	b
BARIUM	6/6	0.0920	0.337	Und	0.184	0.337(d)	na	N	na	N	N	b
BERYLLIUM	2/4	0.00140	0.00180	Und	0.00160	0.0018(d)	na	na	na	na	Y	c Background - 0/4
CADMIUM	0/6											
CHROMIUM	3/6	0.00460	0.0541	Und	0.0302	0.0541(d)	na	na	N	Y	Y	a
COBALT	2/6	0.0166	0.0402	Und	0.0284	0.0402(d)	na	na	na	na	Y	c Background - 0/5
COPPER	3/6	0.0375	0.0654	Und	0.0487	0.0654(d)	na	N	na	Y	Y	a
CYANIDE	0/6											
LEAD	4/5	0.0074	0.242	Und	0.0750	0.242(d)	na	N	na	Y	Y	a
MAGNESIUM	6/6	43.2	157	Und	81.4	157(d)	na	Y	na	Y	Y	a
MANGANESE	6/6	0.0215	3.26	Und	1.34	3.26(d)	na	Y	na	Y	Y	a
MERCURY	0/6											
MOLYBDENUM	0/2											
NICKEL	2/6	0.0469	0.0749	Und	0.0609	0.0749(d)	na	na	N	Y	Y	a
SELENIUM	0/6											
SILVER	0/6											
THALLIUM	0/6											
URANIUM, TOTAL	6/6	.00230	.289	Und	.108	.289(d)	na	Y	na	Y	Y	a
VANADIUM	5/6	0.0297	0.0669	Und	0.0456	0.0669(d)	na	na	Y	Y	Y	a

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TABLE A. IV - 39
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 1 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
ZINC	5/6	0.0220	0.1650	Und	0.0854	0.165(d)	na	N	na	N	N	b
Volatile Organics (ug/L)												
1,1,1-TRICHLOROETHANE	1/6	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
1,1-DICHLOROETHANE	1/6	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
1,2-DICHLOROETHENE (TOTAL)	5/6	2.00	89.0	Und	25.2	89.0(d)	na	na	na	na	na	e
TETRACHLOROETHENE	3/6	2.00	39.0	Und	17.7	39.0(d)	na	na	na	na	na	e
TRICHLOROETHENE	3/6	6.00	13.0	Und	9.00	13.0(d)	na	na	na	na	na	e
General Chemistries (mg/L)	0/6											
AMMONIA	1/6	0.0481	0.0481	Und	0.0481	0.0481(d)	na	na	N	N	N	b
FLUORIDE	5/5	0.290	0.400	Und	0.360	0.400(d)	na	N	na	N	N	b
NITRATE	0/1											
NITRATE/NITRITE	4/4	0.0600	22.0	Und	6.62	22.0(d)	na	na	na	Y	Y	a
SULFATE	5/5	0.170	150	Und	96.0	150(d)	na	N	na	Y	Y	a

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 40
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 1 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	5/5	1.30	101	Und	39.9	101(d)	na	na	na	na	na	f
URANIUM-234	5/5	1.80	88.3	Und	38.1	88.3(d)	na	na	na	Y	Y	a
THORIUM-230	0/5											
RADIUM-226	2/6	1.20	1.20	Und	1.20	1.20(d)	na	N	na	Y	Y	a
URANIUM-235/236	4/5	0.300	3.10	Und	2.12	3.10(d)	na	na	na	Y	Y	a
THORIUM-232	0/5											
RADIUM-228	0/6											
THORIUM-228	0/5											
TECHNETIUM-99	4/5	223	1610	Und	694	1610(d)	na	N	na	Y	Y	a
Metals (mg/kg)												
ALUMINUM	1/6	3.48	3.48	Und	3.48	3.48(d)	na	na	N	Y	Y	a
ANTIMONY	0/6											
ARSENIC	1/6	0.0020	0.0020	Und	0.0020	0.0020(d)	na	na	N	N	N	b
BARIUM	6/6	0.048	0.159	Und	0.078	0.159(d)	na	N	na	N	N	b
BERYLLIUM	0/4											
CADMIUM	0/6											
CHROMIUM	2/6	0.0048	0.0077	Und	0.0063	0.0077(d)	na	Y*	na	N	N	b, d
COBALT	0/6											
COPPER	1/6	0.0072	0.0072	Und	0.0072	0.0072(d)	na	na	N	N	N	b
CYANIDE	0/6											
LEAD	2/5	0.0011	0.0022	Und	0.0017	0.0022(d)	na	N	na	N	N	b
MAGNESIUM	6/6	27.1	61.0	Und	45.5	61.0(d)	na	Y	na	Y	Y	a
MANGANESE	4/6	0.168	0.800	Und	0.331	0.800(d)	na	N	na	Y	Y	a
MERCURY	0/6											
MOLYBDENUM	0/2											
NICKEL	0/6											
SELENIUM	0/6											
SILVER	0/6											
THALLIUM	0/6											
URANIUM, TOTAL	6/6	0.0039	0.273	Und	0.0913	0.273(d)	na	na	na	Y	Y	a
VANADIUM	3/6	0.0073	0.027	Und	0.020	0.027(d)	na	na	N	Y	Y	a

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TABLE A. IV - 40
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 1 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
ZINC	3/6	0.015	0.030	Und	0.021	0.030(d)	na	Y*	na	N	N	b, d	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 41
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	7/7	0.500	2.20	Log	1.13	1.58(b)	na	Y	na	Y	Y	a	
URANIUM-234	7/7	0.700	2.70	Log	1.40	2.23(b)	na	Y	na	Y	Y	a	
THORIUM-230	7/8	0.300	2.80	Log	0.800	2.38(b)	na	Y	na	Y	Y	a	
RADIUM-226	3/8	1.40	3.30	Und	2.10	3.30(d)	na	Y	na	Y	Y	a	
URANIUM-235/236	0/7												
THORIUM-232	0/8												
RADIUM-228	0/8												
THORIUM-228	1/8	0.300	0.300	Und	0.300	0.300(d)	na	na	N	N	N	b	
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	1/4	4.10	4.10	Und	4.10	4.10(d)	na	na	na	Y	Y	a	
TECHNETIUM-99	1/8	20.6	20.6	Und	20.6	20.6(d)	na	na	na	N	N	b	
CESIUM-137	0/2												
Metals (mg/L)													
ALUMINUM	5/8	0.0617	5.37	Und	1.14	5.37(d)	na	na	Y	Y	Y	a	
ANTIMONY	0/8												
ARSENIC	2/8	0.0025	0.0138	Und	0.0082	0.0138(d)	na	na	N	N	N	b	
BARIUM	8/8	0.041	1.59	Und	0.249	1.59(d)	na	N	na	Y	Y	a	
BERYLLIUM	1/8	0.0116	0.0116	Und	0.0116	0.0116(d)	na	na	na	na	Y	c	Background - 0/16
CADMIUM	7/8	0.009	0.127	Log	0.0288	0.127(d)	na	na	Y	Y	Y	a	
CHROMIUM	5/8	0.0066	7.71	Und	1.55	7.71(d)	na	na	Y	Y	Y	a	
COBALT	3/8	0.0076	0.305	Und	0.107	0.305(d)	na	na	na	Y	Y	a	
COPPER	1/8	0.726	0.726	Und	0.726	0.726(d)	na	na	N	Y	Y	a	
CYANIDE	0/8												
LEAD	3/8	0.0022	0.262	Und	0.0888	0.262(d)	na	na	na	Y	Y	a	
MAGNESIUM	8/8	29.6	818	Und	132	818(d)	na	Y	na	Y	Y	a	
MANGANESE	8/8	0.0203	12.4	Und	1.82	12.4(d)	na	Y	na	Y	Y	a	
MERCURY	0/8												
MOLYBDENUM	0/2												
NICKEL	2/8	0.0116	3.93	Und	1.97	3.93(d)	na	na	na	Y	Y	a	
SELENIUM	2/8	0.0067	0.0563	Und	0.0315	0.0563(d)	na	na	na	Y	Y	a	

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TABLE A. IV - 41
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SILVER	1/8	0.0111	0.0111	Und	0.0111	0.0111(d)	na	na	na	N	N	b
THALLIUM	0/8											
URANIUM, TOTAL	8/8	0.002	0.00737	Log	0.0034	0.0052(b)	na	Y	na	Y	Y	a
VANADIUM	2/8	0.0031	0.361	Und	0.182	0.361(d)	na	na	N	Y	Y	a
ZINC	6/8	0.0224	1.18	Und	0.227	1.18(d)	na	na	Y	Y	Y	a
Volatile Organics (ug/L)												
ACETONE	1/8	7.00	7.00	Und	7.00	7.00(d)	na	na	na	na	na	e
CARBON DISULFIDE	2/8	2.00	5.00	Und	3.50	5.00(d)	na	na	na	na	na	e
CHLOROMETHANE	1/8	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
TOLUENE	1/8	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	6/8	0.600	0.480	Und	0.195	0.480(d)	na	na	na	na	na	f
FLUORIDE	8/8	0.180	0.570	Log	0.289	0.403(b)	na	na	na	na	na	f
NITRATE/NITRITE	2/3	0.150	1.31	Und	0.730	1.31(d)	na	na	na	na	na	f
SULFATE	8/8	127	310	Log	192	242(b)	na	Y	na	Y	Y	a

Notes :

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 42
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 2 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	3/3	0.600	2.40	Und	1.33	2.40(d)	na	na	na	Y	Y	a
URANIUM-234	3/3	0.800	2.50	Und	1.37	2.50(d)	na	na	na	Y	Y	a
THORIUM-230	2/3	0.300	0.400	Und	0.350	0.400(d)	na	na	Y	Y	Y	a
RADIUM-226	0/3											
URANIUM-235/236	0/3											
THORIUM-232	0/3											
RADIUM-228	0/3											
THORIUM-228	0/3											
TECHNETIUM-99	0/1											
ALUMINUM	1/6	0.022	0.022	Und	0.022	0.022(d)	na	na	N	N	N	b
ANTIMONY	0/6											
ARSENIC	1/6	0.0025	0.0025	Und	0.0025	0.0025(d)	na	na	N	N	N	b
BARIUM	6/6	0.0406	0.076	Und	0.058	0.076(d)	na	N	na	N	N	b
BERYLLIUM	0/6											
CADMIUM	4/6	0.00651	0.0345	Und	0.018	0.0345(d)	na	na	Y	na	Y	a
CHROMIUM	1/6	0.0067	0.0067	Und	0.0067	0.0067(d)	na	na	N	na	N	b
COBALT	1/6	0.011	0.011	Und	0.011	0.011(d)	na	na	na	na	na	c
COPPER	4/6	0.0037	0.0063	Und	0.0047	0.0063(d)	na	na	Y	na	N	b, d
CYANIDE	0/1											
LEAD	0/6											
MAGNESIUM	6/6	28.2	69.1	Und	39.0	69.1(d)	na	Y	na	na	Y	a
MANGANESE	6/6	0.017	1.42	Und	0.0490	1.42(d)	na	Y	na	na	Y	a
MERCURY	0/6											
MOLYBDENUM	0/1											
NICKEL	1/6	0.589	0.589	Und	0.589	0.589(d)	na	na	N	na	Y	a
SELENIUM	1/6	0.0013	0.0013	Und	0.0013	0.0013(d)	na	na	N	na	N	b
SILVER	1/6	0.0059	0.0059	Und	0.0059	0.0059(d)	na	na	N	na	N	b
THALLIUM	0/6											
URANIUM, TOTAL	3/3	0.001	0.0065	Und	0.003	0.0065(d)	na	na	na	Y	Y	a
VANADIUM	0/6											
ZINC	5/6	0.0022	0.0278	Und	0.018	0.278(d)	na	N	na	N	N	b

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 43
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	0/8											
URANIUM-234	0/8											
THORIUM-230	5/8	0.300	0.900	Und	0.560	0.900(d)	na	N	na	N	N	b
RADIUM-226	1/8	2.20	2.20	Und	2.20	2.20(d)	na	na	Y	Y	Y	a
URANIUM-235/236	0/8											
THORIUM-232	0/8											
RADIUM-228	0/8											
THORIUM-228	1/8	0.600	0.600	Und	0.600	0.600(d)	na	na	N	N	N	b
NEPTUNIUM-237	0/1											
PLUTONIUM-239/240	0/1											
PLUTONIUM-238	0/1											
STRONTIUM-90	0/3											
TECHNETIUM-99	0/8											
Metals (mg/L)												
ALUMINUM	2/7	0.107	0.141	Und	0.124	0.141(d)	na	na	N	N	N	b
ANTIMONY	0/7											
ARSENIC	1/7	0.0032	0.0032	Und	0.0032	0.0032(d)	na	na	N	N	N	b
BARIUM	7/7	0.0503	0.401	Log	0.156	0.374(b)	N	na	na	N	N	b
BERYLLIUM	0/7											
CADMIUM	2/7	0.0034	0.0034	Und	0.0034	0.0034(d)	na	na	N	N	N	b
CHROMIUM	1/7	0.0083	0.0083	Und	0.0083	0.0083(d)	na	na	N	N	N	b
COBALT	2/7	0.0072	0.0077	Und	0.0075	0.0077(d)	na	na	N	N	N	b
COPPER	0/7											
CYANIDE	0/7											
LEAD	1/7	0.0028	0.0028	Und	0.0028	0.0028(d)	na	na	N	Y	Y	a
MAGNESIUM	7/7	22.2	52.0	Log	31.7	44.0(b)	na	N	na	Y	Y	a
MANGANESE	7/7	0.0888	0.340	Log	0.218	0.340(d)	N	na	na	N	N	b
MERCURY	0/7											
NICKEL	1/7	0.0104	0.0104	Und	0.0104	0.0104(d)	na	na	N	N	N	b
SELENIUM	1/7	0.0024	0.0024	Und	0.0024	0.0024(d)	na	na	N	Y	Y	a
SILVER	0/7											

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TABLE A. IV - 43
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
THALLIUM	0/7											
THORIUM, TOTAL	0/1											
URANIUM, TOTAL	3/8	0.0005	0.002	Und	0.0012	0.002(d)	na	N	na	Y	Y	a
VANADIUM	0/7											
ZINC	2/7	0.0179	0.124	Und	0.0710	0.124(d)	na	na	N	Y	Y	a
Volatile Organics (ug/L)												
2-BUTANONE	1/7	26.0	26.0	Und	26.0	26.0(d)	na	na	na	na	na	e
ACETONE	1/8	8.00	8.00	Und	8.00	8.00(d)	na	na	na	na	na	e
TOLUENE	2/8	1.00	8.00	Und	4.50	8.00(d)	na	na	na	na	na	e
TRICHLOROETHENE	1/8	9.00	9.00	Und	9.00	9.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	8/8	0.190	2.25	Log	0.768	1.90(b)	na	na	na	na	na	f
FLUORIDE	8/8	0.180	0.540	Log	0.270	0.383(b)	na	na	na	na	na	f
NITRATE	1/1	0.170	0.170	Und	0.170	0.170(d)	na	na	na	na	na	f
NITRATE/NITRITE	4/4	0.0400	0.180	Und	0.108	0.180(d)	na	na	na	na	na	f
SULFATE	8/8	74.0	229	Log	120	177(b)	na	Y	na	Y	Y	a

000662

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 44
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	0/2											
URANIUM-234	0/2											
THORIUM-230	0/2											
RADIUM-226	0/2											
URANIUM-235/236	0/2											
THORIUM-232	0/2											
RADIUM-228	0/2											
THORIUM-228	0/2											
TECHNETIUM-99	0/2											
Metals (mg/kg)												
ALUMINUM	1/4	0.153	0.153	Und	0.153	0.153(d)	na	na	N	N	N	b
ANTIMONY	0/3											
ARSENIC	1/4	0.0030	0.0030	Und	0.0030	0.0030(d)	na	na	N	na	N	b
BARIUM	4/4	0.068	0.204	Und	0.122	0.204(d)	na	N	na	na	N	b
BERYLLIUM	1/4	0.0020	0.0020	Und	0.0020	0.0020(d)	na	na	N	N	N	b
CADMIUM	1/4	0.0060	0.0060	Und	0.0060	0.0060(d)	na	na	N	na	N	b
CHROMIUM	1/4	0.037	0.037	Und	0.037	0.037(d)	na	na	N	na	N	b
COBALT	2/4	0.0070	0.0075	Und	0.0073	0.0075(d)	na	na	na	na	Y	c background - 0/23
COPPER	3/4	0.0033	0.012	Und	0.0063	0.012(d)	na	na	Y	na	N	b, d
LEAD	1/4	0.0050	0.0050	Und	0.0050	0.0050(d)	na	na	N	na	N	b
MAGNESIUM	4/4	22.8	42.0	Und	28.6	42.0(d)	na	N	na	na	N	b
MANGANESE	4/4	0.161	0.332	Und	0.242	0.332(d)	na	Y	na	na	N	b, d
MERCURY	1/4	0.0007	0.0007	Und	0.0007	0.0007(d)	na	na	N	na	N	b
MOLYBDENUM	0/1											
NICKEL	1/4	0.022	0.022	Und	0.022	0.022(d)	na	na	N	na	N	b
SELENIUM	0/4											
SILVER	1/4	0.019	0.019	Und	0.019	0.019(d)	na	na	N	na	N	b
THALLIUM	0/3											
URANIUM, TOTAL	0/2											
VANADIUM	1/4	0.026	0.026	Und	0.026	0.026(d)	na	na	N	Y	Y	a
ZINC	3/4	0.027	0.104	Und	0.054	0.104(d)	na	N	na	Y	N	b, d

000664

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 45
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	1/3	0.700	0.700	Und	0.700	0.700(d)	na	na	na	Y	Y	a
URANIUM-234	1/3	0.600	0.600	Und	0.600	0.600(d)	na	na	na	N	N	b
THORIUM-230	2/3	0.300	0.400	Und	0.350	0.400(d)	na	na	na	N	N	b
RADIUM-226	1/3	1.10	1.10	Und	1.10	1.10(d)	na	na	na	N	N	b
URANIUM-235/236	0/3											
THORIUM-232	0/3											
RADIUM-228	0/3											
THORIUM-228	0/3											
TECHNETIUM-99	0/3											
Metals (mg/L)												
ALUMINUM	0/3											
ANTIMONY	0/3											
ARSENIC	1/3	0.0276	0.0276	Und	0.0276	0.0276(d)	na	na	na	Y	Y	a
BARIUM	3/3	0.0530	0.621	Und	0.410	0.621(d)	na	na	na	N	N	b
BERYLLIUM	0/3											
CADMIUM	1/3	0.0037	0.0037	Und	0.0037	0.0037(d)	na	na	na	N	N	b
CHROMIUM	0/3											
COBALT	1/3	0.0076	0.0076	Und	0.0076	0.0076(d)	na	na	na	N	N	b
COPPER	0/3											
CYANIDE	0/3											
LEAD	0/3											
MAGNESIUM	3/3	19.2	66.0	Und	44.0	66.0(d)	na	na	na	Y	Y	a
MANGANESE	3/3	0.0664	0.372	Und	0.191	0.372(d)	na	na	na	N	N	b
MERCURY	0/3											
NICKEL	1/3	0.0106	0.0106	Und	0.0106	0.0106(d)	na	na	na	N	N	b
SELENIUM	1/3	0.0032	0.0032	Und	0.0032	0.0032(d)	na	na	na	Y	Y	a
SILVER	0/3											
THALLIUM	0/3											
URANIUM, TOTAL	1/3	0.0002	0.0002	Und	0.0002	0.0002(d)	na	na	na	N	N	b
VANADIUM	0/3											
ZINC	0/3											

000666

TABLE A. IV - 45
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
General Chemistries (mg/L)													
AMMONIA	3/3	0.0500	4.56	Und	2.63	4.56(d)	na	na	na	na	na	f	
FLUORIDE	3/3	0.150	0.590	Und	0.377	0.590(d)	na	na	na	na	na	f	
NITRATE/NITRITE	1/1	0.0400	0.0400	Und	0.0400	0.0400(d)	na	na	na	na	na	f	
SULFATE	3/3	24.0	224	Und	99.0	224(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 46
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN BORDER (TYPE 4 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Metals (mg/L)												
ALUMINUM	0/1											
ANTIMONY	0/1											
ARSENIC	1/1	0.0246	0.0246	Und	0.0246	0.0246(d)	na	na	na	N	N	b
BARIUM	0/1											
BERYLLIUM	0/1											
CADMIUM	0/1											
CHROMIUM	0/1											
COBALT	0/1											
COPPER	1/1	0.0048	0.0048	Und	0.0048	0.0048(d)	na	na	N	N	N	b
LEAD	0/1											
MAGNESIUM	1/1	45.5	45.5	Und	45.5	45.5(d)	na	na	na	na	Y	c
MANGANESE	1/1	0.0628	0.0628	Und	0.0628	0.0628(d)	na	na	na	na	N	d
MERCURY	0/1											
NICKEL	0/1											
SELENIUM	0/1											
SILVER	0/1											
THALLIUM	0/1											
VANADIUM	0/1											
ZINC	0/1											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 47
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER (TYPE 2 AND TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	2/3	1.74	3.80	Und	2.77	3.80(d)	na	na	na	Y	Y	a
URANIUM-234	3/3	1.11	3.40	Und	2.02	3.40(d)	na	na	na	Y	Y	a
THORIUM-230	3/4	0.400	1.30	Und	0.811	1.30(d)	na	na	Y	Y	Y	a
RADIUM-226	1/2	1.50	1.50	Und	1.50	1.50(d)	na	na	na	N	N	b
URANIUM-235/236	0/3											
THORIUM-232	2/4	0.275	0.481	Und	0.378	0.481(d)	na	na	N	Y	Y	a
RADIUM-228	0/4											
THORIUM-228	2/4	0.985	1.49	Und	1.24	1.49(d)	na	N	na	Y	Y	a
PLUTONIUM-239/240	0/2											
PLUTONIUM-238	0/2											
STRONTIUM-90	0/2											
TECHNETIUM-99	0/2											
RUTHENIUM-106	0/2											
CESIUM-137	0/2											
Metals (mg/L)												
ALUMINUM	2/4	0.114	0.117	Und	0.116	0.117(d)	na	N	na	N	N	b
ANTIMONY	1/4	0.044	0.044	Und	0.044	0.044(d)	na	na	na	na	na	c
ARSENIC	4/4	0.029	0.156	Und	0.118	0.156(d)	na	Y	na	na	N	b, d
BARIUM	4/4	0.129	0.820	Und	0.509	0.820(d)	na	Y	na	na	Y	a
BERYLLIUM	0/4											
CADMIUM	2/4	0.0059	0.0065	Und	0.0062	0.0065(d)	na	na	Y	na	Y	a
CHROMIUM	2/4	0.026	0.035	Und	0.031	0.035(d)	na	na	na	na	N	b
COBALT	0/4											
COPPER	1/4	0.014	0.014	Und	0.014	0.014(d)	na	na	na	na	N	b
CYANIDE	0/2											
LEAD	1/4	0.0012	0.0012	Und	0.0012	0.0012(d)	na	na	N	na	N	b
MAGNESIUM	4/4	31.5	58.4	Und	43.0	58.4(d)	na	Y	na	na	Y	a
MANGANESE	4/4	0.027	0.131	Und	0.062	0.131(d)	na	N	na	na	N	b
MERCURY	0/4											
MOLYBDENUM	2/2	0.018	0.045	Und	0.032	0.045(d)	na	na	Y	na	Y	a
NICKEL	1/4	0.022	0.022	Und	0.022	0.022(d)	na	na	N	na	N	b

TABLE A. IV - 47
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER (TYPE 2 AND TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	2/4	0.0012	0.0016	Und	0.0014	0.0016(d)	na	na	Y	na	N	b, d
SILVER	2/4	0.023	0.029	Und	0.026	0.029(d)	na	na	Y	na	Y	a
THALLIUM	0/4											
THORIUM, TOTAL	2/2	0.0025	0.0043	Und	0.0034	0.0043(d)	na	na	na	na	na	c
URANIUM, TOTAL	3/4	0.0002	0.0016	Und	0.0008	0.0016(d)	na	N	na	Y	Y	a
VANADIUM	2/4	0.015	0.019	Und	0.017	0.019(d)	na	na	na	N	N	b
ZINC	0/4											

000572

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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000623

TABLE A. IV - 48
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER (TYPE 2 AND TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	1/2	1.10	1.10	Und	1.10	1.10(d)	na	na	na	Y	Y	a
URANIUM-234	2/2	0.600	1.20	Und	0.900	1.20(d)	na	Y	na	Y	Y	a
THORIUM-230	2/4	0.600	0.700	Und	0.650	0.700(d)	na	N	na	N	Y	c
RADIUM-226	2/4	1.30	1.40	Und	1.35	1.40(d)	na	Y	na	N	Y	a
URANIUM-235/236	0/2											
THORIUM-232	0/4											
RADIUM-228	3/4	3.10	3.90	Und	3.50	3.90(d)	na	na	Y	Y	Y	a
THORIUM-228	0/4											
Metals (mg/L)												
ALUMINUM	2/4	0.0445	0.0594	Und	0.0520	0.0594(d)	na	na	N	N	N	b
ANTIMONY	0/4											
ARSENIC	4/4	0.0294	0.148	Und	0.106	0.148(d)	na	Y	na	Y	Y	a
BARIUM	4/4	0.134	0.768	Und	0.480	0.768(d)	na	N	na	N	N	b
BERYLLIUM	0/4											
CADMIUM	0/4											
CHROMIUM	0/4											
COBALT	0/4											
COPPER	0/4											
CYANIDE	0/2											
LEAD	2/4	0.0020	0.0033	Und	0.0027	0.0033(d)	na	na	Y	Y	Y	a
MAGNESIUM	4/4	30.1	56.4	Und	41.8	56.4(d)	na	Y	na	Y	Y	a
MANGANESE	4/4	0.0232	0.125	Und	0.0626	0.125(d)	na	Y*	na	N	N	b, d
MERCURY	0/4											
NICKEL	0/4											
SELENIUM	0/4											
SILVER	0/4											
THALLIUM	0/4											
URANIUM, TOTAL	0/4											
VANADIUM	0/4											
ZINC	0/4											

000674

TABLE A. IV - 48
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN BORDER (TYPE 2 AND TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Volatile Organics (ug/L)												
ACETONE	1/4	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	4/4	4.20	25.0	Und	10.8	25.0(d)	na	na	na	na	na	f
FLUORIDE	3/4	0.300	0.940	Und	0.650	0.940(d)	na	na	na	na	na	f
NITRATE	1/1	0.100	0.100	Und	0.100	0.100(d)	na	na	na	na	na	f
NITRATE/NITRITE	0/2											
SULFATE	3/4	0.0620	17.0	Und	8.02	17.0(d)	na	Y*	na	N	N	b, d

000875

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 49
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	24/26	0.500	99.3	Log	24.8	99.3(d)	na	Y	na	Y	Y	a
URANIUM-234	25/26	0.300	89.1	Und	19.8	84.2(c)	na	Y	na	Y	Y	a
THORIUM-230	14/34	0.300	4.53	Und	0.938	1.50(c)	na	Y	na	na	Y	a
RADIUM-226	7/33	1.40	7.36	Und	3.25	3.50(c)	na	na	Y*	na	Y	a, c
URANIUM-235/236	14/26	0.500	5.54	Norm	2.32	1.87(a)	na	na	Y	Y	Y	a
THORIUM-232	1/34	2.70	2.70	Und	2.70	2.70(d)	na	na	N	na	Y	c
RADIUM-228	4/32	3.10	5.80	Und	4.28	4.40(c)	na	na	N	na	Y	c
THORIUM-228	8/34	1.00	4.20	Und	1.67	1.69(c)	na	na	N	na	Y	c
NEPTUNIUM-237	0/13											
PLUTONIUM-239/240	0/13											
PLUTONIUM-238	0/13											
STRONTIUM-90	2/20	1.40	7.24	Und	4.32	1.40(e)	na	na	N	Y	Y	a
TECHNETIUM-99	1/20	19.2	19.2	Und	19.2	19.2(d)	na	na	na	N	N	b
RUTHENIUM-106	0/2											
CESIUM-137	0/4											
Metals (mg/kg)												
ALUMINUM	14/20	0.0250	10.8	Und	2.41	10.8(d)	na	na	Y	Y	Y	a
ANTIMONY	0/19											
ARSENIC	8/20	0.0010	0.0340	Und	0.0128	0.0340(d)	na	Y	na	Y	Y	a
BARIUM	19/19	0.0246	0.308	Und	0.0876	0.308(d)	na	Y*	na	N	N	b, d
BERYLLIUM	0/19											
CADMIUM	1/20	0.0030	0.0030	Und	0.0030	0.0030(d)	na	na	na	N	N	b
CHROMIUM	8/20	0.0063	1.11	Und	0.170	1.11(d)	na	na	Y	Y	Y	a
COBALT	1/19	0.0436	0.0436	Und	0.0436	0.0436(d)	na	na	na	Y	Y	a
COPPER	8/20	0.0044	0.0315	Und	0.0125	0.0315(d)	na	na	Y	N	Y	a
CYANIDE	0/19											
LEAD	10/21	0.0012	0.0134	Log	0.0043	0.0074(b)	na	na	na	Y	Y	a
MAGNESIUM	20/20	17.9	81.7	Und	32.2	57.0(c)	na	N	na	Y	Y	a
MANGANESE	19/20	0.0013	6.13	Und	0.651	3.41(c)	na	N	na	Y	Y	a
MERCURY	1/20	0.0002	0.0002	Und	0.0002	0.0002(d)	na	na	na	na	Y	c
MOLYBDENUM	2/5	0.0100	0.0119	Und	0.0110	0.0119(d)	na	na	na	na	Y	c

TABLE A. IV - 49
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	5/20	0.0115	0.621	Und	0.140	0.0291(c)	na	na	N	Y	Y	a
SELENIUM	5/21	0.0010	0.0021	Und	0.0015	0.002(c)	na	na	N	Y	Y	a
SILVER	2/18	0.0031	0.0180	Und	0.0106	0.0180(d)	na	na	na	Y	Y	a
THALLIUM	0/19											
THORIUM, TOTAL	0/13											
URANIUM, TOTAL	24/24	0.0004	0.521	Log	0.076	0.521(b)	na	Y	na	na	Y	a
VANADIUM	7/20	0.0050	0.0521	Und	0.0174	0.0295(c)	na	na	N	Y	Y	a
ZINC	6/19	0.0101	0.0877	Und	0.0326	0.0877(d)	na	na	N	Y	Y	a
Volatile Organics (ug/kg)												
1,1,1-TRICHLOROETHANE	6/23	1.00	550	Und	96.5	10.0(c)	na	na	na	na	na	e
1,1-DICHLOROETHANE	1/23	58.0	58.0	Und	58.0	58.0(d)	na	na	na	na	na	e
1,1-DICHLOROETHENE	1/23	110	110	Und	110	110(d)	na	na	na	na	na	e
1,2-DICHLOROETHANE	1/23	310	310	Und	310	310(d)	na	na	na	na	na	e
1,2-DICHLOROETHENE (TOTAL)	1/23	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	e
ACETONE	1/23	5.00	5.00	Und	5.00	5.00(d)	na	na	na	na	na	e
CHLOROFORM	2/23	2.00	29.0	Und	15.5	29.0(d)	na	na	na	na	na	e
TRICHLOROETHENE	2/23	2.00	34.0	Und	18.0	34.0(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
BIS(2-ETHYLHEXYL)PHTHALATE	2/9	0.800	1.00	Und	0.900	1.00(d)	na	na	na	na	na	f
AMMONIA	11/31	0.0200	0.207	Und	0.103	0.200(c)	na	na	na	na	na	f
FLUORIDE	30/31	0.100	1.80	Log	0.371	0.451(b)	na	na	na	na	na	f
NITRATE	16/16	0.0600	11.85	Norm	4.23	5.81(a)	na	na	na	na	na	f
NITRATE/NITRITE	13/15	0.0400	5.10	Norm	2.12	2.56(a)	na	na	na	na	na	f
SULFATE	31/31	22.0	120	Norm	72.4	78.3(a)	na	Y	na	na	Y	a

000678

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 50
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 2 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	16/18	0.400	78.8	Log	20.4	78.8(d)	na	Y	na	Y	Y	a
URANIUM-234	16/18	0.400	77.3	Log	19.6	77.3(d)	na	Y	na	Y	Y	a
THORIUM-230	9/21	0.400	2.92	Und	1.65	213(c)	na	na	N	Y	Y	a
RADIUM-226	3/20	1.01	1.50	Und	1.20	1.10(c)	na	na	Y*	N	Y	b, d
URANIUM-235/236	9/18	1.00	3.60	Norm	2.34	1.79(a)	na	na	na	na	na	c Background - 0/10
THORIUM-232	1/21	2.70	2.70	Und	2.70	2.70(d)	na	na	Y*	Y	Y	a
RADIUM-228	0/21											
THORIUM-228	9/21	0.400	5.92	Und	3.37	5.85(c)	na	N	na	Y	Y	a
NEPTUNIUM-237	1/8	2.50	2.50	Und	2.50	2.50(d)	na	na	Y*	Y	Y	a
PLUTONIUM-239/240	0/9											
PLUTONIUM-238	0/9											
STRONTIUM-90	2/14	1.40	5.69	Und	3.54	5.69(d)	na	na	na	na	na	c Background - 0/1
TECHNETIUM-99	1/15	19.2	19.2	Und	19.2	19.2(d)	na	na	na	na	na	c Background - 0/1
RUTHENIUM-106	0/8											
CESIUM-137	0/11											
Metals (mg/L)												
ALUMINUM	4/19	0.016	0.133	Und	0.085	0.133(d)	na	na	Y*	N	N	b, d
ANTIMONY	0/19											
ARSENIC	4/20	0.0023	0.310	Und	0.083	0.310(d)	na	na	N	na	N	b
BARIUM	20/20	0.020	0.102	Log	0.045	0.054(b)	na	Y*	na	na	N	b, d
BERYLLIUM	0/19											
CADMIUM	3/20	0.0020	0.0060	Und	0.0037	0.0032(c)	na	na	N	na	N	b
CHROMIUM	3/20	0.022	0.036	Und	0.031	0.034(c)	na	na	N	na	N	b
COBALT	0/19											
COPPER	3/20	0.0068	0.048	Und	0.024	0.018(c)	na	na	N	na	N	b
CYANIDE	2/16	0.023	0.055	Und	0.039	0.055(d)	na	na	na	na	na	c Background - 0/12
LEAD	7/20	0.0012	0.013	Und	0.0040	0.013(d)	na	na	Y	na	N	b, d
MAGNESIUM	20/20	18.2	32.1	Log	24.7	26.3(b)	na	Y*	na	na	N	b, d
MANGANESE	14/20	0.0014	0.463	Log	0.101	0.463(d)	na	Y*	na	na	N	b, d
MERCURY	1/20	0.0010	0.0010	Und	0.0010	0.0010(d)	na	na	N	na	N	b
MOLYBDENUM	2/7	0.025	0.035	Und	0.030	0.035(d)	na	na	N	na	N	b

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TABLE A. IV - 50
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 2 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	2/20	0.020	0.024	Und	0.022	0.020(c)	na	na	N	na	N	b
SELENIUM	4/20	0.0012	0.0020	Und	0.0016	0.0020(d)	na	na	N	na	N	b
SILVER	3/20	0.011	0.020	Und	0.017	0.0200(d)	na	na	N	na	N	b
THALLIUM	0/19											
THORIUM, TOTAL	3/9	0.0025	0.0046	Und	0.0033	0.0046(d)	na	na	na	na	na	c Background - 0/1
URANIUM, TOTAL	21/21	0.0004	0.239	Log	0.048	0.239(d)	na	Y	na	Y	Y	a
VANADIUM	2/20	0.011	0.017	Und	0.014	0.011(c)	na	na	Y*	N	N	b, d
ZINC	4/19	0.0049	0.098	Und	0.030	0.098(d)	na	na	N	Y	N	b, d

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 51
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	10/12	0.500	22.0	Und	6.33	22.0(d)	na	Y	na	Y	Y	a
URANIUM-234	11/12	0.400	21.7	Und	5.80	21.7(d)	na	Y	na	Y	Y	a
THORIUM-230	4/13	0.400	0.700	Und	0.575	0.700(d)	na	N	na	N	N	b
RADIUM-226	1/13	2.60	2.60	Und	2.60	2.60(d)	na	na	Y*	Y	Y	c
URANIUM-235/236	2/12	0.600	0.800	Und	0.700	0.800(d)	na	na	N	Y	Y	a
THORIUM-232	1/13	0.800	0.800	Und	0.800	0.800(d)	na	na	na	Y	Y	a
RADIUM-228	0/13											
THORIUM-228	0/13											
NEPTUNIUM-237	0/1											
PLUTONIUM-239/240	0/1											
PLUTONIUM-238	0/1											
STRONTIUM-90	1/2	2.10	2.10	Und	2.10	2.10(d)	na	na	na	Y	Y	a
TECHNETIUM-99	1/4	24.4	24.4	Und	24.4	24.4(d)	na	na	Y	Y	Y	a
RUTHENIUM-106	0/1											
Metals (mg/kg)												
ALUMINUM	6/14	0.0233	1.10	Und	0.339	1.10(d)	na	na	N	Y	Y	a
ANTIMONY	0/14											
ARSENIC	3/15	0.0015	0.0212	Und	0.0086	0.0212(d)	na	na	N	Y	Y	a
BARIUM	14/14	0.0425	0.142	Log	0.0662	0.0787(b)	na	Y*	na	N	N	b, d
BERYLLIUM	0/14											
CADMIUM	1/14	0.0285	0.0285	Und	0.0285	0.0285(d)	na	na	N	Y	Y	a
CHROMIUM	2/14	0.0057	0.0091	Und	0.0074	0.0091(d)	na	na	N	N	N	b
COBALT	0/14											
COPPER	4/14	0.0034	0.0604	Und	0.0186	0.0604(d)	na	na	N	Y	Y	a
CYANIDE	0/12											
LEAD	6/14	0.0013	0.0024	Und	0.0017	0.0024(d)	na	na	na	Y	Y	a
MAGNESIUM	14/14	20.6	30.8	Log	23.8	25.2(b)	na	Y*	na	N	N	b, d
MANGANESE	14/14	0.0263	0.619	Norm	0.299	0.368(a)	na	Y	na	N	Y	a
MERCURY	0/14											
MOLYBDENUM	0/2											
NICKEL	0/14											

TABLE A. IV - 51
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	2/14	0.0013	0.0018	Und	0.0016	0.0018(d)	na	na	na	Y	Y	a
SILVER	0/14											
THALLIUM	0/14											
THORIUM, TOTAL	0/1											
URANIUM, TOTAL	13/13	0.0002	0.062	Und	0.0139	0.062(d)	na	Y	na	na	Y	a
VANADIUM	0/14											
ZINC	3/14	0.0199	0.0789	Und	0.0565	0.0789(d)	na	na	N	Y	Y	a
Volatile Organics (ug/kg)												
ACETONE	1/12	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
Semivolatile Organics (ug/kg)												
AMMONIA	7/13	0.0300	0.140	Log	0.0867	0.122(b)	na	na	na	na	na	f
FLUORIDE	11/13	0.120	0.400	Log	0.234	0.294(b)	na	na	na	na	na	f
NITRATE	0/3											
NITRATE/NITRITE	3/9	0.0600	0.0640	Und	0.0613	0.0640(d)	na	na	na	na	na	f
SULFATE	13/13	57.0	143	Log	89.5	102(b)	na	Y	na	N	Y	a

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 52
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	11/12	0.400	15.2	Log	3.75	15.2(d)	na	Y	na	Y	Y	a
URANIUM-234	11/12	0.400	14.3	Log	3.95	14.3(d)	na	Y	na	Y	Y	a
THORIUM-230	6/12	1.04	1.77	Und	1.36	1.77(d)	na	na	N	Y	Y	a
RADIUM-226	0/12											
URANIUM-235/236	5/12	1.00	1.75	Und	1.18	1.75(d)	na	na	na	na	Y	c Background - 0/10
THORIUM-232	2/12	0.400	0.800	Und	0.600	0.800(d)	na	na	N	Y	Y	a
RADIUM-228	1/12	4.28	4.28	Und	4..28	4.28(d)	na	na	na	na	Y	c Background - 0/13
THORIUM-228	9/12	0.300	8.60	Log	3.33	8.60(d)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/4											
PLUTONIUM-239/240	0/8											
PLUTONIUM-238	0/8											
STRONTIUM-90	0/8											
TECHNETIUM-99	1/9	24.4	24.4	Und	24.4	24.4(d)	na	na	na	na	Y	c Background - 0/1
RUTHENIUM-106	0/7											
CESIUM-137	0/7											
Metals (mg/L)												
ALUMINUM	3/15	0.100	1.44	Und	0.770	1.44(d)	na	na	N	Y	Y	a
ANTIMONY	0/14											
ARSENIC	2/16	0.0011	0.0026	Und	0.0019	0.0026(d)	na	na	N	na	N	b
BARIUM	15/15	0.041	0.087	Log	0.061	0.068(b)	na	N	na	na	N	b
BERYLLIUM	0/14											
CADMIUM	1/15	0.0060	0.060	Und	0.0060	0.0060(d)	na	na	N	na	N	b
CHROMIUM	1/15	0.031	0.031	Und	0.031	0.031(d)	na	na	Y*	na	N	b, d
COBALT	0/14											
COPPER	2/15	0.0039	0.011	Und	0.0075	0.011(d)	na	na	N	na	N	b
CYANIDE	0/11											
LEAD	5/15	0.0012	0.024	Und	0.0063	0.024(d)	na	na	N	na	N	b
MAGNESIUM	15/15	20.5	30.2	Log	24.0	25.2(b)	na	Y*	na	na	N	b, d
MANGANESE	15/15	0.0068	0.555	Norm	0.285	0.340(a)	na	Y	na	na	Y	a
MERCURY	1/15	0.0015	0.0015	Und	0.0015	0.0015(d)	na	na	N	na	Y	c
MOLYBDENUM	0/4											

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TABLE A. IV - 52
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	0/15											
SELENIUM	2/15	0.0010	0.0013	Und	0.0012	0.0013(d)	na	na	N	na	N	b
SILVER	2/15	0.0082	0.011	Und	0.0096	0.0011(d)	na	na	N	na	N	b
THALLIUM	0/14											
THORIUM, TOTAL	2/8	0.0026	0.003	Und	0.0028	0.003(d)	na	na	na	na	Y	c Background - 0/1
URANIUM, TOTAL	12/12	0.005	0.0478	Log	0.0096	0.0478(d)	na	Y	na	Y	Y	a
VANADIUM	2/15	0.0170	0.0174	Und	0.0172	0.0174(d)	na	na	Y*	N	N	b, d
ZINC	2/14	0.0108	0.0195	Und	0.0152	0.0195(d)	na	na	Y*	N	N	b, d

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 53
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	1/2	0.400	0.400	Und	0.400	0.400(d)	na	na	na	N	N	b
URANIUM-234	1/2	1.10	1.10	Und	1.10	1.10(d)	na	na	na	Y	Y	a
THORIUM-230	0/2											
RADIUM-226	0/2											
URANIUM-235/236	0/2											
THORIUM-232	0/2											
RADIUM-228	0/2											
THORIUM-228	0/2											
Metals (mg/L)												
ALUMINUM	1/2	0.496	0.496	Und	0.496	0.496(d)	na	na	na	Y	Y	a
ANTIMONY	0/2											
ARSENIC	2/2	0.0026	0.0059	Und	0.0043	0.0059(d)	na	na	na	N	N	b
BARIUM	2/2	0.0623	0.122	Und	0.0922	0.122(d)	na	na	na	N	N	b
BERYLLIUM	0/2											
CADMIUM	0/2											
CHROMIUM	0/2											
COBALT	0/2											
COPPER	0/2											
CYANIDE	0/2											
LEAD	1/2	0.0027	0.0027	Und	0.0027	0.0027(d)	na	na	na	Y	Y	a
MAGNESIUM	2/2	21.7	25.5	Und	23.6	25.5(d)	na	na	na	N	N	b
MANGANESE	2/2	0.286	0.723	Und	0.504	0.723(d)	na	na	na	N	N	b
MERCURY	0/2											
MOLYBDENUM	0/1											
NICKEL	0/2											
SELENIUM	1/2	0.0016	0.0016	Und	0.0016	0.0016(d)	na	na	na	Y	Y	a
SILVER	0/2											
THALLIUM	0/2											
URANIUM, TOTAL	3/3	0.0006	0.103	Und	0.0389	0.103(d)	na	na	na	Y	Y	a
VANADIUM	1/2	0.0042	0.0042	Und	0.0042	0.0042(d)	na	na	na	N	N	b
ZINC	1/2	0.0474	0.0474	Und	0.0474	0.0474(d)	na	na	na	Y	Y	a

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TABLE A. IV - 53
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
General Chemistries (mg/L)													
AMMONIA	2/2	0.110	0.320	Und	0.215	0.320(d)	na	na	na	na	na	f	
FLUORIDE	2/2	0.150	0.160	Und	0.155	0.160(d)	na	na	na	na	na	f	
NITRATE/NITRITE	0/2												
SULFATE	2/2	38.0	86.0	Und	62.0	86.0(d)	na	na	na	N	N	b	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 54
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 4 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/2	1.30	1.30	Und	1.30	1.30(d)	na	na	na	Y	Y	a	
URANIUM-234	2/2	0.600	2.00	Und	1.30	2.00(d)	na	na	na	Y	Y	a	
THORIUM-230	0/2												
RADIUM-226	0/2												
URANIUM-235/236	0/2												
THORIUM-232	0/2												
RADIUM-228	0/2												
THORIUM-228	0/2												
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/1												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ALUMINUM	0/2												
ANTIMONY	1/2	0.031	0.031	Und	0.031	0.031(d)	na	na	na	na	na	c	
ARSENIC	2/2	0.0036	0.0050	Und	0.0043	0.0050(d)	na	na	na	na	N	d	
BARIUM	2/2	0.058	0.102	Und	0.080	0.102(d)	na	na	na	na	N	d	
BERYLLIUM	0/2												
CADMIUM	0/2												
CHROMIUM	0/2												
COBALT	0/2												
COPPER	0/2												
CYANIDE	0/2												
LEAD	0/2												
MAGNESIUM	2/2	20.9	23.2	Und	22.0	23.2(d)	na	na	na	na	N	d	
MANGANESE	2/2	0.285	0.636	Und	0.460	0.636(d)	na	na	na	na	N	d	
MERCURY	0/2												
MOLYBDENUM	0/1												

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TABLE A. IV - 54
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
SOUTH PLUME (TYPE 4 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	0/2											
SELENIUM	0/2											
SILVER	0/2											
THALLIUM	0/2											
THORIUM, TOTAL	1/1	0.0049	0.0049	Und	0.0049	0.0049(d)	na	na	na	na	na	c
URANIUM, TOTAL	2/2	0.0002	0.0015	Und	0.0008	0.0015(d)	na	na	na	Y	Y	a
VANADIUM	0/2											
ZINC	0/2											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 55
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WESTERN BORDER (TYPE 2 AND TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	6/8	0.300	1.50	Und	0.867	1.50(d)	na	N	na	Y	Y	a	
URANIUM-234	7/8	0.300	1.70	Log	0.914	1.70(d)	na	N	na	Y	Y	a	
THORIUM-230	0/8												
RADIUM-226	3/8	1.30	2.30	Und	1.70	2.30(d)	na	N	na	Y	Y	a	
URANIUM-235/236	0/8												
THORIUM-232	0/8												
RADIUM-228	0/8												
THORIUM-228	0/8												
Metals (mg/kg)													
ALUMINUM	0/8												
ANTIMONY	0/8												
ARSENIC	4/8	0.0027	0.015	Und	0.0067	0.015(d)	na	N	na	na	N	b	
BARIUM	8/8	0.031	0.665	Log	0.190	0.665(d)	na	N	na	na	N	b	
BERYLLIUM	0/8												
CADMIUM	0/8												
CHROMIUM	0/8												
COBALT	0/8												
COPPER	0/8												
CYANIDE	0/6												
LEAD	2/8	0.0010	0.0022	Und	0.0016	0.0022(d)	na	na	N	na	N	b	
MAGNESIUM	8/8	19.7	41.5	Norm	31.1	36.3(a)	na	N	na	na	N	b	
MANGANESE	6/8	0.065	0.304	Und	0.174	0.304(d)	na	N	na	na	N	b	
MERCURY	0/8												
MOLYBDENUM	0/3												
NICKEL	1/8	0.020	0.020	Und	0.020	0.020(d)	na	na	N	na	N	b	
SELENIUM	0/8												
SILVER	1/8	0.0031	0.0031	Und	0.0031	0.0031(d)	na	na	N	na	N	b	
THALLIUM	0/8												
URANIUM, TOTAL	6/8	0.0004	0.0066	Und	0.0023	0.0066(d)	na	N	na	Y	Y	a	
VANADIUM	1/8	0.0038	0.0038	Und	0.0038	0.0038(d)	na	na	N	N	N	b	
ZINC	0/8												

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 56
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WESTERN BORDER (TYPE 2 AND TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	3/6	1.20	1.80	Und	1.40	1.80(d)	na	Y	na	na	Y	a
URANIUM-234	3/6	0.900	2.10	Und	1.57	2.10(d)	na	N	na	na	Y	a, c
THORIUM-230	2/7	0.300	0.400	Und	0.350	0.400(d)	na	na	N	N	N	b
RADIUM-226	3/8	1.10	1.30	Und	1.17	1.30(d)	na	Y	na	na	Y	a
URANIUM-235/236	0/6											
THORIUM-232	0/7											
RADIUM-228	0/8											
THORIUM-228	0/7											
Metals (mg/L)												
ALUMINUM	0/8											
ANTIMONY	0/8											
ARSENIC	2/8	0.00720	0.0141	Und	0.0107	0.0141(d)	na	na	N	N	N	b
BARIUM	8/8	0.0364	0.677	Log	0.190	0.677(d)	N	na	na	N	N	b
BERYLLIUM	0/8											
CADMIUM	1/8	0.00220	0.00220	Und	0.00220	0.00220(d)	na	na	N	N	N	b
CHROMIUM	1/8	0.0201	0.0201	Und	0.0201	0.0201(d)	na	na	N	N	Y	c
COBALT	0/8											
COPPER	3/8	0.00360	0.0354	Und	0.0142	0.0354(d)	na	na	N	N	N	b
CYANIDE	0/6											
LEAD	4/8	0.00100	0.0216	Und	0.00660	0.0216(d)	na	na	Y	Y	Y	a
MAGNESIUM	8/8	20.4	43.0	Norm	31.9	37.3(a)	N	na	na	Y	Y	a
MANGANESE	7/8	0.0027	0.325	Norm	0.166	0.230(a)	na	N	na	N	N	b
MERCURY	0/8											
MOLYBDENUM	0/3											
NICKEL	2/8	0.0269	0.0514	Und	0.0392	0.0514(d)	na	na	N	N	N	b
SELENIUM	3/8	0.0010	0.0012	Und	0.0011	0.0012(d)	na	na	Y	Y	Y	a
SILVER	0/8											
THALLIUM	0/8											
URANIUM, TOTAL	7/8	0.0002	0.0065	Log	0.0019	0.0065(d)	na	Y	na	na	Y	a
VANADIUM	0/8											
ZINC	1/8	0.185	0.185	Und	0.185	0.185(d)	na	na	N	Y	Y	a, c

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TABLE A. IV - 56
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
WESTERN BORDER (TYPE 2 AND TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Volatile Organics (ug/L)													
METHYLENE CHLORIDE	1/8	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e	
General Chemistries (mg/L)													
AMMONIA	4/8	0.065	3.90	Und	2.49	3.90(d)	na	na	na	na	na	f	
FLUORIDE	8/8	0.150	0.710	Log	0.298	0.532(b)	na	na	na	na	na	f	
NITRATE/NITRITE	3/7	0.051	4.40	Und	2.02	4.40(d)	na	na	na	na	na	f	
SULFATE	7/8	0.099	226	Norm	99.3	140(a)	na	N	na	na	Y	c	

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A.17-37

FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	10/16	0.600	3.70	Norm	1.60	1.63(a)	na	Y	na	Y	Y	a	
URANIUM-234	12/16	0.400	9.60	Log	2.04	4.65(b)	na	Y	na	Y	Y	a	
THORIUM-230	5/18	0.400	1.62	Und	0.976	1.62(d)	na	N	na	Y	Y	a	
RADIUM-226	5/17	1.40	2.60	Und	1.88	2.60(d)	na	na	Y*	Y	Y	a	
URANIUM-235/236	0/16												
THORIUM-232	3/18	1.10	1.80	Und	1.40	1.80(d)	na	na	N	Y	Y	a	
RADIUM-228	2/16	3.20	3.70	Und	3.45	3.70(d)	na	na	N	Y	Y	a	
THORIUM-228	9/17	0.300	2.85	Norm	1.49	1.27(a)	na	Y	na	Y	Y	a	
NEPTUNIUM-237	0/7												
PLUTONIUM-239/240	0/7												
PLUTONIUM-238	0/7												
STRONTIUM-90	1/7	12.1	12.1	Und	12.1	12.1(d)	na	na	na	Y	Y	a	
TECHNETIUM-99	1/10	20.5	20.5	Und	20.5	20.5(d)	na	na	na	N	N	b	
RUTHENIUM-106	0/3												
CESIUM-137	0/3												
Metals (mg/kg)													
ALUMINUM	8/11	0.0276	92.0	Und	13.4	92.0(d)	na	na	Y	Y	Y	a	
ANTIMONY	0/11												
ARSENIC	7/11	0.0024	0.350	Und	0.098	0.350(d)	na	Y	na	Y	Y	a	
BARIUM	10/11	0.0034	8.69	Und	1.04	8.69(d)	na	N	na	Y	Y	a	
BERYLLIUM	1/11	0.0015	0.0015	Und	0.0015	0.0015(d)	na	na	na	na	na	c	
CADMIUM	1/11	0.0032	0.0032	Und	0.0032	0.0032(d)	na	na	N	N	N	b	
CHROMIUM	3/11	0.0206	0.299	Und	0.143	0.299(d)	na	na	N	Y	Y	a	
COBALT	4/11	0.0053	0.168	Und	0.0599	0.168(d)	na	na	na	Y	Y	a	
COPPER	6/11	0.005	0.694	Und	0.138	0.694(d)	na	na	Y	Y	Y	a	
CYANIDE	0/12												
LEAD	5/11	0.0011	0.244	Und	0.0574	0.244(d)	na	na	na	Y	Y	a	
MAGNESIUM	11/11	0.285	93.8	Norm	36.2	49.4(a)	na	N	na	Y	Y	a	
MANGANESE	11/11	0.0059	139	Und	14.8	139(d)	na	Y	na	Y	Y	a	
MERCURY	2/14	0.0004	0.0006	Und	0.0005	0.0006(d)	na	na	na	na	Y	c	Background - 0/15
MOLYBDENUM	1/3	0.0124	0.0124	Und	0.0124	0.0124(d)	na	na	na	na	Y	c	Background - 0/8

000700

TABLE A. IV - 57
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 2 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	3/11	0.0331	0.436	Und	0.188	0.436(d)	na	na	na	Y	Y	a	
SELENIUM	3/11	0.0016	0.0022	Und	0.0018	0.0022(d)	na	na	na	Y	Y	a	
SILVER	0/11												
THALLIUM	0/11												
THORIUM, TOTAL	2/7	0.0026	0.016	Und	0.0093	0.016(d)	na	na	Y	Y	Y	a	
URANIUM, TOTAL	22/23	0.0003	0.144	Log	0.0108	0.0203(b)	na	Y	na	Y	Y	a	
VANADIUM	4/11	0.0071	0.251	Und	0.077	0.251(d)	na	na	N	Y	Y	a	
ZINC	5/11	0.0053	1.12	Und	0.257	1.12(d)	na	na	Y	Y	Y	a	
Semivolatile Organics (ug/kg)													
ACETONE	1/13	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e	
BENZENE	1/13	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	e	
TETRACHLOROETHENE	1/13	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e	
AMMONIA	10/20	0.0850	3.10	Log	0.822	2.15(b)	na	na	na	na	na	f	
FLUORIDE	16/20	0.0002	0.350	Norm	0.186	0.195(a)	na	na	na	na	na	f	
NITRATE	11/11	0.0002	43.2	Und	9.27	43.2(d)	na	na	na	na	na	f	
NITRATE/NITRITE	6/10	0.170	3.38	Und	1.19	3.38(d)	na	na	na	na	na	f	
SULFATE	19/19	0.0500	200	Norm	81.4	98.7(a)	na	Y	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000202

TABLE A. IV - 58
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 2 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	15/20	0.300	9.00	Log	2.37	3.22(b)	na	Y	na	Y	Y	a
URANIUM-234	16/20	0.500	7.90	Log	2.50	7.33(b)	na	Y	na	Y	Y	a
THORIUM-230	13/20	0.300	3.08	Log	1.57	2.36(b)	na	na	Y	Y	Y	a
RADIUM-226	3/20	1.50	4.07	Und	2.40	1.64(c)	na	na	na	Y	Y	a
URANIUM-235/236	5/20	0.500	3.78	Und	1.48	1.25(c)	na	na	na	na	na	c Background - 0/10
THORIUM-232	2/20	1.01	1.30	Und	1.16	1.01(c)	na	na	N	Y	Y	a
RADIUM-228	2/20	4.95	5.53	Norm	5.24	4.95(c)	na	na	na	na	na	c Background - 0/13
THORIUM-228	12/20	0.300	5.99	Log	2.94	5.99(d)	na	Y	na	Y	Y	a
NEPTUNIUM-237	0/14											
PLUTONIUM-239/240	0/15											
PLUTONIUM-238	0/15											
STRONTIUM-90	0/15											
TECHNETIUM-99	2/16	20.5	24.6	Und	22.6	24.6(d)	na	na	na	na	na	c Background - 0/1
RUTHENIUM-106	0/14											
CESIUM-137	0/14											
Metals (mg/L)												
ALUMINUM	1/11	0.131	0.131	Und	0.131	0.131(d)	na	na	Y*	N	N	b, d
ANTIMONY	0/11											
ARSENIC	3/11	0.0028	0.161	Und	0.069	0.161(d)	na	na	N	na	N	b
BARIUM	9/11	0.029	0.551	Log	0.131	0.551(d)	na	N	na	na	N	b
BERYLLIUM	0/11											
CADMIUM	2/11	0.0044	0.0074	Und	0.0059	0.0074(d)	na	na	N	na	N	b
CHROMIUM	2/11	0.036	0.037	Und	0.037	0.037(d)	na	na	N	na	N	b
COBALT	0/11											
COPPER	0/11											
CYANIDE	0/11											
LEAD	3/11	0.0011	0.0014	Und	0.0012	0.0014(d)	na	na	N	na	N	b
MAGNESIUM	11/11	21.8	34.6	Log	27.0	29.2(b)	N	na	na	na	N	b
MANGANESE	10/11	0.0033	0.957	Log	0.172	0.957(d)	na	N	na	na	Y	c
MERCURY	0/11											
MOLYBDENUM	1/4	0.011	0.011	Und	0.0011	0.011(d)	na	na	N	na	N	b

TABLE A. IV - 58
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 2 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	2/11	0.054	0.319	Norm	0.187	0.319(d)	na	na	N	na	Y	c
SELENIUM	0/11											
SILVER	1/11	0.030	0.030	Und	0.030	0.030(d)	na	na	N	na	N	b
THALLIUM	0/11											
THORIUM, TOTAL	3/15	0.0035	0.0091	Und	0.0064	0.0091(d)	na	na	na	na	na	c Background - 0/1
URANIUM, TOTAL	16/21	0.0005	0.017	Log	0.0037	0.0056(b)	na	Y	na	Y	Y	a
VANADIUM	1/11	0.018	0.018	Und	0.018	0.018(d)	na	na	Y*	N	N	b, d
ZINC	0/11											
SULFATE	1/1	52.0	52.0	Und	52.0	52.0(d)	na	na	na	na	na	f

000204

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000705

TABLE A. IV - 59
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCI/L)												
URANIUM-238	1/6	0.800	0.800	Und	0.800	0.800(d)	na	na	na	Y	Y	a
URANIUM-234	3/6	0.500	0.600	Und	0.567	0.600(d)	na	Y*	na	N	N	b, d
THORIUM-230	1/6	0.400	0.400	Und	0.400	0.400(d)	na	na	na	N	N	b
RADIUM-226	1/5	4.80	4.80	Und	4.80	4.80(d)	na	na	N	Y	Y	a
URANIUM-235/236	0/6											
THORIUM-232	0/6											
RADIUM-228	2/6	3.20	7.10	Und	5.15	7.10(d)	na	na	N	Y	Y	a
THORIUM-228	0/6											
NEPTUNIUM-237	0/3											
PLUTONIUM-239/240	0/3											
PLUTONIUM-238	0/3											
STRONTIUM-90	0/3											
TECHNETIUM-99	0/3											
RUTHENIUM-106	0/1											
CESIUM-137	0/1											
Metals (mg/L)												
ALUMINUM	2/3	0.025	1.47	Und	0.748	1.47(d)	na	na	na	Y	Y	a
ANTIMONY	1/3	0.0720	0.720	Und	0.720	0.0720(d)	na	na	na	na	Y	c
ARSENIC	1/3	0.234	0.234	Und	0.234	0.234(d)	na	na	na	Y	Y	a
BARIUM	3/3	0.0722	0.494	Und	0.214	0.494(d)	na	na	na	N	N	b
BERYLLIUM	1/3	0.178	0.178	Und	0.178	0.178(d)	na	na	na	na	Y	c
CADMIUM	1/3	0.211	0.211	Und	0.211	0.211(d)	na	na	na	Y	Y	a
CHROMIUM	1/3	0.405	0.405	Und	0.405	0.405(d)	na	na	na	Y	Y	a
COBALT	1/3	0.528	0.528	Und	0.528	0.528(d)	na	na	na	Y	Y	a
COPPER	1/3	0.190	0.190	Und	0.190	0.190(d)	na	na	na	Y	Y	a
CYANIDE	0/4											
LEAD	2/3	0.0048	0.295	Und	0.150	0.295(d)	na	na	na	Y	Y	a
MAGNESIUM	3/3	22.0	26.2	Und	24.1	26.2(d)	na	na	na	N	N	b
MANGANESE	3/3	0.266	0.393	Und	0.334	0.393(d)	na	na	na	N	N	b
MERCURY	1/5	0.0049	0.0049	Und	0.0049	0.0049(d)	na	na	na	na	Y	c
MOLYBDENUM	0/2											

000706

TABLE A. IV - 59
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 3 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	1/3	0.547	0.547	Und	0.547	0.547(d)	na	na	na	Y	Y	a
SELENIUM	1/3	0.234	0.234	Und	0.234	0.234(d)	na	na	na	Y	Y	a
SILVER	1/3	0.0799	0.0799	Und	0.0799	0.0799(d)	na	na	na	Y	Y	a
THALLIUM	1/3	0.0569	0.0569	Und	0.0569	0.0569(d)	na	na	na	na	Y	c
THORIUM, TOTAL	0/3											
URANIUM, TOTAL	6/6	0.0002	0.0014	Und	0.00083	0.0014	na	Y	na	na	Y	a
VANADIUM	1/3	0.290	0.290	Und	0.290	0.290(d)	na	na	na	Y	Y	a
ZINC	1/3	0.126	0.126	Unmd	0.126	0.126(d)	na	na	na	Y	Y	a
Semivolatile Organics (ug/L)												
BENZENE	1/4	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	na	e
TOLUENE	1/4	5.00	5.00	Und	5.00	5.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	5/6	0.058	3.50	Und	0.820	3.50(d)	na	na	na	na	na	f
FLUORIDE	5/6	0.150	1.60	Und	0.514	1.60(d)	na	na	na	na	na	f
NITRATE	3/3	0171	13.2	Und	5.64	13.2(d)	na	na	na	na	na	f
NITRATE/NITRITE	0/3											
SULFATE	6/6	65.9	84.3	Und	75.4	84.3(d)	na	Y*	na	N	N	b, d

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 60
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	0/6											
URANIUM-234	3/6	1.30	1.70	Und	1.43	1.70(d)	na	N	na	Y	Y	a
THORIUM-230	3/6	1.47	2.53	Und	2.07	2.53(d)	na	na	Y	Y	Y	a
RADIUM-226	2/6	1.30	2.29	Und	1.80	2.29(d)	na	N	na	Y	Y	a
URANIUM-235/236	0/6											
THORIUM-232	0/6											
RADIUM-228	0/6											
THORIUM-228	4/6	0.300	3.59	Und	2.53	3.59(d)	na	Y	na	Y	Y	a
NEPTUNIUM-237	1/4	3.25	3.25	Und	3.25	3.25(d)	na	na	N	Y	Y	a
PLUTONIUM-239/240	0/4											
PLUTONIUM-238	0/4											
STRONTIUM-90	0/4											
TECHNETIUM-99	0/4											
RUTHENIUM-106	0/4											
CESIUM-137	0/4											
Metals (mg/kg)												
ALUMINUM	0/3											
ANTIMONY	1/3	0.061	0.061	Und	0.061	0.061(d)	na	na	na	na	Y	c background - 0/10
ARSENIC	1/3	0.230	0.230	Und	0.230	0.230(d)	na	na	na	na	N	d
BARIUM	3/3	0.066	0.482	Und	0.208	0.482(d)	na	na	na	na	N	d
BERYLLIUM	1/3	0.174	0.174	Und	0.174	0.174(d)	na	na	N	Y	Y	a
CADMIUM	1/3	0.203	0.203	Und	0.203	0.203(d)	na	na	N	na	Y	c
CHROMIUM	1/3	0.397	0.397	Und	0.397	0.397(d)	na	na	na	na	Y	c
COBALT	1/3	0.516	0.516	Und	0.516	0.516(d)	na	na	na	na	Y	c
COPPER	1/3	0.186	0.186	Und	0.186	0.186(d)	na	na	N	na	Y	c
CYANIDE	0/3											
LEAD	1/3	0.300	0.300	Und	0.300	0.300(d)	na	na	N	na	Y	a, c
MAGNESIUM	3/3	21.4	25.0	Und	23.0	25.0(d)	na	na	na	na	N	d
MANGANESE	3/3	0.215	0.385	Und	0.286	0.385(d)	na	na	na	na	N	d
MERCURY	1/3	0.0052	0.0052	Und	0.0052	0.0052(d)	na	na	N	na	Y	a, c
MOLYBDENUM	0/2											

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TABLE A. IV - 60
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ROAD INDUSTRIES SITE (TYPE 3 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	1/3	0.518	0.518	Und	0.518	0.518(d)	na	na	N	na	Y	a, c
SELENIUM	1/3	0.246	0.246	Und	0.246	0.246(d)	na	na	N	na	Y	a, c
SILVER	1/3	0.086	0.086	Und	0.086	0.086(d)	na	na	N	na	Y	a, c
THALLIUM	1/3	0.058	0.058	Und	0.058	0.058(d)	na	na	na	na	Y	c background - 0/16
THORIUM, TOTAL	0/4											
URANIUM, TOTAL	2/6	0.0006	0.0006	Und	0.0006	0.0006(d)	na	N	na	N	N	b
VANADIUM	1/3	0.282	0.282	Und	0.282	0.282(d)	na	na	na	Y	Y	a
ZINC	1/3	0.122	0.122	Und	0.122	0.122(d)	na	na	na	Y	N	b, d

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 61
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN WELLS (TYPE 2, TYPE 3, AND TYPE 4 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/g)												
URANIUM-238	8/9	0.500	2.00	Log	0.975	1.50(b)	na	Y	na	Y	Y	a
URANIUM-234	8/9	0.600	2.20	Log	1.08	1.62(b)	na	Y	na	Y	Y	a
THORIUM-230	0/9											
RADIUM-226	3/10	1.10	1.20	Und	1.17	1.20(d)	na	Y*	na	N	N	b, d
URANIUM-235/236	0/9											
THORIUM-232	2/10	0.300	2.40	Und	1.35	2.40(d)	na	na	N	Y	Y	a
RADIUM-228	0/10											
THORIUM-228	1/9	0.600	0.600	Und	0.600	0.600(d)	na	na	N	Y	Y	a
TECHNETIUM-99	0/1											
Metals (mg/kg)												
ALUMINUM	0/10											
ANTIMONY	0/10											
ARSENIC	1/12	0.0072	0.0072	Und	0.0072	0.0072(d)	na	na	N	na	N	b
BARIUM	12/12	0.027	0.095	Norm	0.064	0.075(a)	na	N	na	na	N	b
BERYLLIUM	0/10											
CADMIUM	1/12	0.0034	0.0034	Und	0.0034	0.0034(d)	na	na	N	na	N	b
CHROMIUM	2/12	0.010	0.020	Und	0.015	0.020(d)	na	na	N	na	N	b
COBALT	0/10											
COPPER	2/12	0.015	0.176	Und	0.096	0.176(d)	na	na	N	na	N	b
CYANIDE	0/10											
LEAD	3/12	0.0013	0.080	Und	0.047	0.080(d)	na	na	N	na	Y	c
MAGNESIUM	12/12	19.8	41.1	Log	27.6	30.9(b)	N	na	na	na	N	b
MANGANESE	7/12	0.0011	0.443	Norm	0.216	0.207(a)	na	N	na	na	N	b
MERCURY	0/12											
MOLYBDENUM	1/5	0.040	0.040	Und	0.040	0.040(d)	na	na	N	na	N	b
NICKEL	1/12	0.051	0.051	Und	0.051	0.051(d)	na	na	N	na	Y	c
SELENIUM	0/12											
SILVER	0/12											
THALLIUM	0/10											
THORIUM, TOTAL	0/1											
URANIUM, TOTAL	8/10	0.0008	0.0046	Norm	0.0018	0.0022(a)	na	Y	na	Y	Y	a

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TABLE A. IV - 61
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN WELLS (TYPE 2, TYPE 3, AND TYPE 4 WELLS)
FILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
VANADIUM	0/10												
ZINC	2/10	0.012	0.017	Und	0.015	0.017(d)	na	na	N	N	N	b	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 62
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN WELLS (TYPE 2, TYPE 3, AND TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	7/20	0.500	4.83	Und	1.50	1.70(c)	na	Y	na	Y	Y	a
URANIUM-234	12/20	0.400	11.2	Und	1.77	1.70(c)	na	Y	na	Y	Y	a
THORIUM-230	7/21	0.300	6.79	Und	2.10	3.20(c)	na	N	na	Y	Y	a
RADIUM-226	2/21	2.50	3.30	Und	2.90	2.50(c)	na	na	Y	Y	Y	a
URANIUM-235/236	0/20											
THORIUM-232	3/21	1.20	2.73	Und	2.11	2.40(c)	na	na	N	Y	Y	a
RADIUM-228	2/21	3.20	4.87	Und	4.04	3.20(c)	na	na	N	Y	Y	a
THORIUM-228	3/20	1.40	4.92	Und	2.81	2.10(c)	na	na	Y	Y	Y	a
NEPTUNIUM-237	0/11											
PLUTONIUM-239/240	0/11											
PLUTONIUM-238	0/11											
STRONTIUM-90	0/11											
TECHNETIUM-99	0/12											
RUTHENIUM-106	0/3											
CESIUM-137	0/3											
Metals (mg/L)												
ALUMINUM	3/10	0.0213	0.225	Und	0.0928	0.225(d)	na	na	N	Y	N	b, d
ANTIMONY	0/10											
ARSENIC	2/10	0.00210	0.00770	Und	0.00490	0.00770(d)	na	na	N	N	N	b
BARIUM	10/10	0.0368	0.153	Log	0.0747	0.0976(b)	na	Y*	na	N	N	b, d
BERYLLIUM	0/10											
CADMIUM	0/10											
CHROMIUM	2/10	0.00670	0.0732	Und	0.0400	0.0732(d)	na	na	N	Y	Y	a
COBALT	0/10											
COPPER	2/10	0.00450	0.00710	Und	0.00580	0.00710(d)	na	na	N	N	N	b
CYANIDE	0/10											
LEAD	3/10	0.00140	0.00200	Und	0.00160	0.00200(d)	na	na	N	N	N	b
MAGNESIUM	10/10	20.4	39.0	Log	29.1	33.1(b)	na	N	na	Y	N	b, d
MANGANESE	9/10	0.00340	0.429	Log	0.177	0.429(d)	N	na	na	N	N	b
MERCURY	0/10											
MOLYBDENUM	0/2											

TABLE A. IV - 62
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
EASTERN WELLS (TYPE 2, TYPE 3, AND TYPE 4 WELLS)
UNFILTERED GROUNDWATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	2/10	0.030	0.065	Und	0.048	0.065(d)	na	na	N	Y	Y	a
SELENIUM	2/10	0.00100	0.00280	Und	0.00190	0.00280(d)	na	na	N	Y	Y	a
SILVER	0/10											
THALLIUM	0/10											
THORIUM, TOTAL	1/2	0.00200	0.00200	Und	0.00200	0.00200(d)	na	na	Y	na	Y	a
URANIUM, TOTAL	11/12	0.000300	0.00510	Log	0.00160	0.00510(d)	na	Y	na	Y	Y	a
VANADIUM	1/10	0.00760	0.00760	Und	0.00760	0.00760(d)	na	na	N	N	N	b
ZINC	3/10	0.00500	0.0102	Und	0.00730	0.0102(d)	na	na	N	N	N	b
General Chemistries (mg/L)												
AMMONIA	12/21	0.0200	0.331	Norm	0.200	0.173(a)	na	na	na	na	na	f
FLUORIDE	20/21	0.140	0.990	Log	0.302	0.367(b)	na	na	na	na	na	f
NITRATE	12/13	0.160	11.1	Norm	5.30	6.92(a)	na	na	na	na	na	f
NITRATE/NITRITE	7/9	0.290	25.2	Log	5.90	25.2(d)	na	na	na	na	na	f
SULFATE	21/21	24.0	124	Norm	75.3	84.2(a)	na	Y*	na	N	N	b, d
POTASSIUM-40	10/10	1.41	4.02	Log	2.14	2.57(b)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 63
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	4/4	28.0	1050	Und	520	1050(d)	na	na	na	Y	Y	a	
URANIUM-234	4/4	20.5	1040	Und	534	1040(d)	na	na	na	Y	Y	a	
THORIUM-230	1/3	2.51	2.51	Und	2.51	2.51(d)	na	na	na	Y	Y	a	
RADIUM-226	0/4												
URANIUM-235/236	3/4	14.4	41.8	Und	29.3	41.8(d)	na	na	na	Y	Y	a	
THORIUM-232	0/3												
RADIUM-228	0/4												
THORIUM-228	0/3												
NEPTUNIUM-237	0/3												
PLUTONIUM-239/240	1/3	0.81	0.81	Und	0.81	0.81(d)	na	na	na	Y	Y	a	
PLUTONIUM-238	0/3												
STRONTIUM-90	0/3												
TECHNETIUM-99	0/3												
RUTHENIUM-106	0/3												
CESIUM-137	0/3												
Metals (mg/L)													
ALUMINUM	4/5	0.182	14.4	Und	4.01	14.4(d)	na	na	na	Y	Y	a	
ANTIMONY	0/5												
ARSENIC	1/5	0.003	0.0034	Und	0.0034	0.0034(d)	na	na	na	Y	Y	a	
BARIUM	5/5	0.060	0.223	Und	0.0980	0.223(d)	na	na	na	Y	Y	a	
BERYLLIUM	0/5												
CADMIUM	0/5												
CHROMIUM	1/5	0.0114	0.0114	Und	0.0114	0.0114(d)	na	na	na	Y	Y	a	
COBALT	0/5												
COPPER	1/5	0.0202	0.0202	Und	0.0202	0.0202(d)	na	na	na	Y	Y	a	
CYANIDE	1/5	0.0028	0.0028	Und	0.0028	0.0028(d)	na	na	na	Y	Y	a	
LEAD	1/5	0.0091	0.0091	Und	0.0091	0.0091(d)	na	na	na	Y	Y	a	
MAGNESIUM	5/5	33.3	65.7	Und	41.8	65.7(d)	na	na	na	Y	Y	a	
MANGANESE	5/5	0.0147	0.825	Und	0.362	0.825(d)	na	na	na	Y	Y	a	
MERCURY	0/5												
MOLYBDENUM	0/5												

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TABLE A. IV - 63
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	1/5	0.0270	0.0270	Und	0.0270	0.0270(d)	na	na	na	Y	Y	a
SELENIUM	0/5											
SILICON	5/5	5.49	30.2	Und	11.1	30.2(d)	na	na	na	Y	Y	a
SILVER	0/5											
THALLIUM	0/5											
THORIUM, TOTAL	1/3	0.001	0.001	Und	0.001	0.001(d)	na	na	na	Y	Y	a
URANIUM, TOTAL	4/4	0.071	2.89	Und	1.36	1.36(c)	na	na	na	Y	Y	a
VANADIUM	1/5	0.0317	0.0317	Und	0.0317	0.0317(d)	na	na	na	na	na	f
ZINC	4/5	0.0192	0.073	Und	0.037	0.073(d)	na	na	na	Y	Y	a
Volatile Organics (ug/L)												
1,2-DICHLOROETHENE (TOTAL)	1/5	67.0	67.0	Und	67.0	67.0(d)	na	na	na	na	na	e
TETRACHLOROETHENE	3/5	1.00	240	Und	90.0	240(d)	na	na	na	na	na	e
TRICHLOROETHENE	2/5	2.00	18.0	Und	10.0	18.0(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	2/5	0.220	0.446	Und	0.333	0.446(d)	na	na	na	na	na	f
FLUORIDE	5/5	0.290	0.560	Und	0.384	0.560(d)	na	na	na	na	na	f
NITRATE	2/4	0.740	2.67	Und	1.70	2.67(d)	na	na	na	na	na	f
SULFATE	5/5	44.7	101	Und	76.5	101(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 64
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	4/4	26.8	1210	Und	536	1210(d)	na	na	na	Y	Y	a	
URANIUM-234	4/4	21.8	1170	Und	538	1170(d)	na	na	na	Y	Y	a	
THORIUM-230	2/3	0.480	0.500	Und	0.490	0.500(d)	na	na	na	Y	Y	a	
RADIUM-226	0/4												
URANIUM-235/236	4/4	1.30	38.4	Und	22.3	38.4(d)	na	na	na	Y	Y	a	
THORIUM-232	0/3												
RADIUM-228	0/4												
THORIUM-228	0/3												
NEPTUNIUM-237	1/3	0.750	0.750	Und	0.750	0.750(d)	na	na	na	Y	Y	a	
PLUTONIUM-239/240	0/3												
PLUTONIUM-238	0/3												
STRONTIUM-90	0/3												
TECHNETIUM-99	0/3												
RUTHENIUM-106	0/3												
CESIUM-137	0/3												
Metals (mg/L)													
ALUMINUM	3/4	0.140	0.201	Und	0.174	0.201(d)	na	na	na	Y	Y	a	
ANTIMONY	0/4												
ARSENIC	0/4												
BARIUM	4/4	0.0576	0.0711	Und	0.063	0.0711(d)	na	na	na	Y	Y	a	
BERYLLIUM	0/4												
CADMIUM	0/4												
CHROMIUM	0/4												
COBALT	0/4												
COPPER	0/4												
CYANIDE	1/3	0.0024	0.0024	Und	0.0024	0.0024(d)	na	na	na	Y	Y	a	
LEAD	0/4												
MAGNESIUM	4/4	32.8	37.7	Und	35.7	37.7(d)	na	na	na	Y	Y	a	
MANGANESE	4/4	0.008	0.344	Und	0.190	0.344(d)	na	na	na	Y	Y	a	
MERCURY	0/4												
MOLYBDENUM	0/4												

TABLE A. IV - 64
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	0/4											
SELENIUM	1/4	0.0046	0.0046	Und	0.0046	0.0046(d)	na	na	na	Y	Y	a
SILICON	4/4	5.33	6.72	Und	5.88	6.72(d)	na	na	na	Y	Y	a
SILVER	0/4											
THALLIUM	0/4											
THORIUM, TOTAL	1/3	0.0009	0.0009	Und	0.0009	0.0009(d)	na	na	na	Y	Y	a
URANIUM, TOTAL	4/4	0.074	2.36	Und	1.24	2.36(d)	na	na	na	Y	Y	a
VANADIUM	0/4											
ZINC	1/4	0.0384	0.0384	Und	0.0384	0.0384(d)	na	na	na	na	na	f

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 65
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
RADIUM-226	0/1												
RADIUM-228	0/1												
Metals (mg/L)													
URANIUM, TOTAL	1/1	2.22	2.22	Und	2.22	2.22(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 66
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
RADIUM-226	0/1												
RADIUM-228	1/1	4.10	4.10	Und	4.10	4.10(d)	na	na	na	Y	Y	a	
Metals (mg/L)													
URANIUM, TOTAL	1/1	2.12	2.12	Und	2.12	2.12(d)	na	na	na	Y	Y	a	

N

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 67
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	5/5	2.13	14.1	Und	6.26	14.1(d)	na	na	na	Y	Y	a
URANIUM-234	5/5	2.32	10.9	Und	5.61	10.9(d)	na	na	na	Y	Y	a
THORIUM-230	2/6	0.320	0.433	Und	0.376	0.433(d)	na	na	na	Y	Y	a
RADIUM-226	0/8											
URANIUM-235/236	0/5											
THORIUM-232	1/6	0.400	0.400	Und	0.400	0.400(d)	na	na	na	na	Y	c Background - 0/2
RADIUM-228	0/8											
THORIUM-228	0/6											
NEPTUNIUM-237	0/2											
PLUTONIUM-239/240	0/2											
PLUTONIUM-238	0/2											
STRONTIUM-90	0/2											
TECHNETIUM-99	0/3											
RUTHENIUM-106	0/2											
CESIUM-137	0/2											
Metals (mg/L)												
ALUMINUM	2/5	0.136	0.145	Und	0.140	0.145(d)	na	na	na	N	N	b
ANTIMONY	0/5											
ARSENIC	0/5											
BARIUM	5/5	0.0366	0.0478	Und	0.0430	0.0478(d)	na	na	na	N	N	b
BERYLLIUM	0/5											
CADMIUM	1/5	0.0050	0.0050	Und	0.0050	0.0050(d)	na	na	na	na	Y	c Background - 0/2
CHROMIUM	0/5											
COBALT	0/5											
COPPER	0/5											
CYANIDE	1/6	0.0038	0.0038	Und	0.0038	0.0038(d)	na	na	na	na	Y	c Background - 0/2
LEAD	1/4	0.156	0.156	Und	0.156	0.156(d)	na	na	na	na	Y	c Background - 0/2
MAGNESIUM	5/5	22.5	27.1	Und	25.4	27.1(d)	na	na	na	N	N	b
MANGANESE	5/5	0.0075	0.0304	Und	0.0200	0.0304(d)	na	na	na	N	N	b
MERCURY	0/5											
MOLYBDENUM	0/5											

TABLE A. IV - 67
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	1/5	0.0141	0.0141	Und	0.0141	0.0141(d)	na	na	na	na	Y	c Background - 0/1
SELENIUM	0/3											
SILVER	0/3											
THALLIUM	0/5											
THORIUM, TOTAL	0/2											
URANIUM, TOTAL	8/8	.00360	.0261	Log	.00969	.0170(b)	na	na	na	Y	Y	a
VANADIUM	0/5											
ZINC	1/5	0.0149	0.0149	Und	0.0149	0.0149(d)	na	na	na	na	Y	c Background - 0/1
Semivolatile Organics (μg/L)												
BIS(2-ETHYLHEXYL)PHTHALATE	2/4	11.0	40.0	Und	25.5	40.0(d)	na	na	na	na	na	e
DI-N-OCTYL PHTHALATE	1/4	52.0	52.0	Und	52.0	52.0(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	2/6	0.0001	0.0720	Und	0.0361	0.0720(d)	na	na	na	na	na	f
FLUORIDE	6/6	0.0002	0.230	Und	0.170	0.230(d)	na	na	na	na	na	f
NITRATE	1/1	1.64	1.64	Und	1.64	1.64(d)	na	na	na	na	na	f
NITRITE, AS NITROGEN	1/1	1.50	1.50	Und	1.50	1.50(d)	na	na	na	na	na	f
SULFATE	4/4	62.5	77.4	Und	69.0	77.4(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 68
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	4/4	2.80	9.20	Und	4.77	9.20(d)	na	na	na	Y	Y	a
URANIUM-234	4/4	2.70	9.70	Und	5.15	9.70(d)	na	na	na	Y	Y	a
THORIUM-230	1/6	0.400	0.400	Und	0.400	0.400(d)	na	na	N	Y	Y	a
RADIUM-226	1/6	1.70	1.70	Und	1.70	1.70(d)	na	na	na	na	Y	c Background - 0/2
URANIUM-235/236	2/4	0.400	1.69	Und	1.04	1.69(d)	na	na	na	na	Y	c Background - 0/2
THORIUM-232	1/6	0.400	0.400	Und	0.400	0.400(d)	na	na	na	na	Y	c Background - 0/2
RADIUM-228	1/5	3.20	3.20	Und	3.20	3.20(d)	na	na	na	na	Y	c Background - 0/2
THORIUM-228	0/6											
PLUTONIUM-239/240	0/1											
PLUTONIUM-238	0/1											
STRONTIUM-90	0/1											
TECHNETIUM-99	0/1											
RUTHENIUM-106	0/1											
CESIUM-137	0/1											
Metals (mg/L)												
ALUMINUM	2/6	0.0478	0.185	Und	0.116	0.185(d)	na	na	N	Y	Y	a
ANTIMONY	0/6											
ARSENIC	0/6											
BARIUM	6/6	0.0420	0.0457	Und	0.0435	0.0457(d)	na	na	na	N	N	b
BERYLLIUM	0/6											
CADMIUM	0/6											
CHROMIUM	0/6											
COBALT	0/6											
COPPER	0/6											
CYANIDE	0/4											
LEAD	1/5	0.0107	0.0107	Und	0.0107	0.0107(d)	na	na	na	na	Y	c Background - 0/2
MAGNESIUM	6/6	22.7	27.6	Und	25.5	27.6(d)	na	na	na	N	N	b
MANGANESE	5/6	0.0072	0.0286	Und	0.0175	0.0286(d)	na	na	na	Y	Y	a
MERCURY	0/6											
MOLYBDENUM	0/6											
NICKEL	0/6											

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000231

TABLE A. IV - 68
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	0/4											
SILVER	1/4	0.0040	0.0040	Und	0.0040	0.0040(d)	na	na	na	na	Y	c Background - 0/2
THALLIUM	0/6											
THORIUM, TOTAL	0/1											
URANIUM, TOTAL	6/6	0.0082	0.0342	Und	0.0163	0.0342(d)	na	na	na	Y	Y	a
VANADIUM	0/6											
ZINC	1/6	0.0038	0.0038	Und	0.0038	0.0038(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 69
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	3/3	4.25	6.80	Und	5.18	6.80(d)	na	na	na	Y	Y	a	
URANIUM-234	3/3	3.57	5.00	Und	4.11	5.00(d)	na	na	na	Y	Y	a	
THORIUM-230	3/3	2.05	6.74	Und	3.69	6.74(d)	na	na	na	Y	Y	a	
RADIUM-226	0/3												
URANIUM-235/236	0/3												
THORIUM-232	0/3												
RADIUM-228	0/3												
THORIUM-228	1/3	4.50	4.50	Und	4.50	4.50(d)	na	na	na	na	Y	c	Background - 0/2
NEPTUNIUM-237	0/3												
PLUTONIUM-239/240	0/3												
PLUTONIUM-238	0/3												
STRONTIUM-90	1/3	24.0	24.0	Und	24.0	24.0(d)	na	na	na	Y	Y	a	
TECHNETIUM-99	0/3												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ALUMINUM	2/2	0.451	2.95	Und	1.70	2.95(d)	na	na	na	Y	Y	a	
ANTIMONY	1/2	0.0025	0.0025	Und	0.0025	0.0025(d)	na	na	na	na	Y	c	Background - 0/2
ARSENIC	1/2	0.0037	0.0037	Und	0.0037	0.0037(d)	na	na	na	na	Y	c	Background - 0/2
BARIUM	2/2	0.0383	0.0658	Und	0.0521	0.0658(d)	na	na	na	Y	Y	a	
BERYLLIUM	1/2	0.0012	0.0012	Und	0.0012	0.0012(d)	na	na	na	na	Y	c	Background - 0/1
CADMIUM	2/2	0.0032	0.0040	Und	0.0036	0.0040(d)	na	na	na	na	Y	c	Background - 0/2
CHROMIUM	2/2	0.0170	0.0173	Und	0.0172	0/0173(d)	na	na	na	na	Y	c	Background - 0/2
COBALT	0/2												
COPPER	2/2	0.0120	0.0147	Und	0.0134	0.0147(d)	na	na	na	na	Y	c	Background - 0/1
CYANIDE	1/2	0.0053	0.0053	Und	0.0053	0.0053(d)	na	na	na	na	Y	c	Background - 0/2
LEAD	0/2												
MAGNESIUM	2/2	13.7	23.6	Und	18.6	23.6(d)	na	na	na	N	N	b	
MANGANESE	2/2	0.0265	0.0471	Und	0.0368	0.0471(d)	na	na	na	Y	Y	a	
MERCURY	0/2												
MOLYBDENUM	1/2	0.0205	0.0205	Und	0.0205	0.0205(d)	na	na	na	na	Y	c	Background - 0/2

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TABLE A. IV - 69
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	0/2											
SELENIUM	0/2											
SILICON	1/1	4.12	4.12	Und	4.12	4.12(d)	na	na	na	Y	Y	a
SILVER	1/2	0.0190	0.0190	Und	0.0190	0.0190(d)	na	na	na	na	Y	c
THALLIUM	0/2											
THORIUM, TOTAL	1/3	.00358	.00358	Und	.00358	.00358(d)	na	na	na	na	Y	c Background - 0/1
URANIUM, TOTAL	3/3	.00500	.0150	Und	.00967	.0150(d)	na	na	na	Y	Y	a
VANADIUM	2/2	0.0127	0.0177	Und	0.0152	0.0177(d)	na	na	na	na	na	f
ZINC	2/2	0.0186	0.0368	Und	0.0277	0.0368(d)	na	na	na	na	Y	c Background - 0/1
Semivolatile Organics (µg/L)												
N-NITROSODIPHENYLAMINE	1/2	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	3/3	0.170	0.452	Und	0.344	0.452(d)	na	na	na	na	na	f
FLUORIDE	3/3	0.220	0.300	Und	0.250	0.300(d)	na	na	na	na	na	f
NITRATE	3/3	8.55	12.1	Und	10.6	12.1(d)	na	na	na	na	na	f
SULFATE	3/3	52.2	88.9	Und	66.2	88.9(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 70
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE B (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
RADIUM-226	1/2	1.10	1.10	Und	1.10	1.10(d)	na	na	na	Y	Y	a	
RADIUM-228	0/2												
Metals (mg/L)													
URANIUM, TOTAL (mg/L)	2/2	.0230	.138	Und	.0805	.138(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 71
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	3/3	4.80	6.20	Und	5.70	6.20(d)	na	na	na	Y	Y	a	
URANIUM-234	3/3	2.70	8.76	Und	4.89	8.76(d)	na	na	na	Y	Y	a	
THORIUM-230	1/3	1.06	1.06	Und	1.06	1.06(d)	na	na	na	Y	Y	a	
RADIUM-226	0/3												
URANIUM-235/236	0/3												
THORIUM-232	0/3												
RADIUM-228	0/3												
THORIUM-228	1/3	1.00	1.00	Und	1.00	1.00(d)	na	na	na	na	Y	c	Background - 0/2
NEPTUNIUM-237	0/3												
PLUTONIUM-239/240	0/3												
PLUTONIUM-238	0/3												
STRONTIUM-90	0/3												
TECHNETIUM-99	0/3												
RUTHENIUM-106	0/2												
CESIUM-137	0/2												
Metals (mg/L)													
ALUMINUM	2/3	0.0764	0.102	Und	0.0892	0.102(d)	na	na	na	N	N	b	
ARSENIC	2/3	0.0030	0.0188	Und	0.0109	0.0188(d)	na	na	na	na	Y	c	Background - 0/2
BARIUM	3/3	0.0470	0.0470	Und	0.0470	0.0470(d)	na	na	na	N	N	b	
CADMIUM	3/3	0.00300	0.00400	Und	0.00340	0.00400(d)	na	na	na	na	Y	c	Background - 0/2
CHROMIUM	3/3	0.0243	0.0530	Und	0.0344	0.0530(d)	na	na	na	na	y	c	Background - 0/2
COPPER	1/3	0.0121	0.0121	Und	0.0121	0.0121(d)	na	na	na	na	Y	c	Background - 0/1
LEAD	3/3	0.00210	0.00930	Und	0.00630	0.00930(d)	na	na	na	na	Y	c	Background - 0/2
MAGNESIUM	3/3	20.4	23.0	Und	21.4	23.0(d)	na	na	na	N	N	b	
MANGANESE	3/3	0.0121	0.0278	Und	0.0203	0.0278(d)	na	na	na	Y	Y	a	
MERCURY	3/3	0.000200	.00030	Und	0.000200	0.000300(d)	na	na	na	na	Y	c	Background - 0/2
MOLYBDENUM	0/3												
NICKEL	1/3	0.0250	0.0250	Und	0.0250	0.0250(d)	na	na	na	na	Y	c	Background - 0/1
SELENIUM	1/3	0.0169	0.0169	Und	0.0169	0.0169(d)	na	na	na	na	Y	c	Background - 0/2
SILVER	3/3	0.0120	0.0210	Und	0.0153	0.0210(d)	na	na	na	na	Y	c	Background - 0/2
THORIUM, TOTAL	0/3												

TABLE A. IV - 71
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE A (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
URANIUM, TOTAL	3/3	0.00900	0.0252	Und	0.0197	0.0252(d)	na	na	na	Y	Y	a
VANADIUM	3/3	0.0110	0.0130	Und	0.0123	0.0130(d)	na	na	na	na	Y	c Background - 0/1

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
na not applicable
* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 72
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN - ONSITE B (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
RADIUM-226	0/2												
RADIUM-228	0/2												
Metals (mg/L)													
URANIUM, TOTAL	2/2	0.017	0.111	Und	0.064	0.111(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 73
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/3	1.69	1.69	Und	1.69	1.69(d)	na	na	N	Y	Y	a	
URANIUM-234	1/3	1.50	1.50	Und	1.50	1.50(d)	na	na	na	Y	Y	a	
THORIUM-230	0/3												
RADIUM-226	0/3												
URANIUM-235/236	0/3												
THORIUM-232	0/3												
RADIUM-228	0/3												
THORIUM-228	0/3												
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/1												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ALUMINUM	0/3												
ANTIMONY	0/3												
ARSENIC	2/3	0.0034	0.0054	Und	0.0044	0.0054(d)	na	na	na	na	Y	c	Background - 0/2
BARIUM	3/3	0.0273	0.0525	Und	0.0426	0.0525(d)	na	na	na	N	N	b	
BERYLLIUM	0/3												
CADMIUM	0/3												
CHROMIUM	0/3												
COBALT	0/3												
COPPER	0/3												
CYANIDE	1/2	0.0077	0.0077	Und	0.0077	0.0077(d)	na	na	na	na	Y	c	Background - 0/2
LEAD	2/3	0.0117	0.0979	Und	0.0548	0.0979(d)	na	na	na	na	Y	c	Background - 0/2
MAGNESIUM	3/3	6.91	30.1	Und	21.3	30.1(d)	na	na	na	Y	Y	a	
MANGANESE	3/3	0.0053	0.0412	Und	0.0214	0.0412(d)	na	na	na	Y	Y	a	
MERCURY	0/3												
MOLYBDENUM	0/3												

TABLE A. IV - 73
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	0/3												
SELENIUM	1/2	0.0010	0.0010	Und	0.0010	0.0010(d)	na	na	na	na	Y	c	Background - 0/2
SILICON	3/3	3.39	4.12	Und	3.74	4.12(d)	na	na	na	Y	Y	b	
SILVER	0/2												
THALLIUM	0/3												
THORIUM , TOTAL	0/1												
URANIUM, TOTAL	2/3	0.0042	0.0347	Und	0.0194	0.0347(d)	na	na	na	Y	Y	a	
VANADIUM	0/3												
ZINC	1/3	0.0098	0.0098	Und	0.0098	0.0098(d)	na	na	na	na	Y	c	Background - 0/1
Semivolatile Organics (ug/L)													
BIS(2-ETHYLHEXYL)PHTHALATE	2/3	16.0	58.0	Und	37.0	58.0(d)	na	na	na	na	na	e	
General Chemistries (mg/L)													
AMMONIA	1/3	0.150	0.150	Und	0.150	0.150(d)	na	na	na	na	na	f	
FLUORIDE	3/3	0.190	0.220	Und	0.203	0.220(d)	na	na	na	na	na	f	
SULFATE	3/3	30.4	89.0	Und	62.2	89.0(d)	na	na	na	na	na	f	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/2	1.10	1.10	Und	1.10	1.10(d)	na	na	na	Y	Y	a	
URANIUM-234	1/2	1.00	1.00	Und	1.00	1.00(d)	na	na	na	Y	Y	a	
THORIUM-230	0/2												
RADIUM-226	0/2												
URANIUM-235/236	0/2												
THORIUM-232	0/2												
RADIUM-228	0/2												
THORIUM-228	0/2												
TECHNETIUM-99	0/1												
Metals (mg/L)													
ALUMINUM	0/1												
ANTIMONY	0/1												
ARSENIC	0/1												
BARIUM	1/1	0.0496	0.0496	Und	0.0496	0.0496(d)	na	na	na	N	N	b	
BERYLLIUM	0/1												
CADMIUM	0/1												
CHROMIUM	0/1												
COBALT	0/1												
COPPER	0/1												
CYANIDE	0/1												
LEAD	1/1	0.0045	0.0045	Und	0.0045	0.0045(d)	na	na	na	na	Y	c	Background - 0/2
MAGNESIUM	1/1	29.8	29.8	Und	29.8	29.8(d)	na	na	na	Y	Y	a	
MANGANESE	1/1	0.0098	0.0098	Und	0.0098	0.0098(d)	na	na	na	N	N	b	
MERCURY	0/1												
MOLYBDENUM	0/1												
NICKEL	0/1												
SELENIUM	0/1												
SILVER	0/1												
THALLIUM	0/1												
URANIUM, TOTAL	1/2	0.0036	0.0036	Und	0.0036	0.0036(d)	na	na	na	Y	Y	a	

TABLE A. IV - 74
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
VANADIUM	0/1											
ZINC	0/1											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 75
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/1	1.30	1.30	Und	1.30	1.30(d)	na	na	na	Y	Y	a	
URANIUM-234	0/1												
THORIUM-230	0/1												
RADIUM-226	0/4												
URANIUM-235/236	0/1												
THORIUM-232	0/1												
RADIUM-228	0/5												
THORIUM-228	0/1												
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/1												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ARSENIC	0/1												
BARIUM	1/1	0.0271	0.0271	Und	0.0271	0.0271(d)	na	na	na	N	N	b	
CADMIUM	0/1												
CHROMIUM	1/1	0.0072	0.0072	Und	0.0072	0.0072(d)	na	na	na	na	Y	c	Background - 0/2
COPPER	0/1												
LEAD	1/1	0.0022	0.0022	Und	0.0022	0.0022(d)	na	na	na	na	Y	c	Background - 0/2
MAGNESIUM	1/1	107	107	Und	107	107(d)	na	na	na	Y	Y	a	
MANGANESE	1/1	0.0084	0.0084	Und	0.0084	0.0084(d)	na	na	na	N	N	b	
MERCURY	1/1	0.0003	0.0003	Und	0.0003	0.0003(d)	na	na	na	na	Y	c	Background - 0/2
MOLYBDENUM	0/1												
NICKEL	0/1												
SILVER	0/1												
THORIUM, TOTAL	0/1												
URANIUM, TOTAL	5/5	0.0070	0.0240	Und	0.0174	0.0240(d)	na	na	na	Y	Y	a	

TABLE A. IV - 75
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
General Chemistries (mg/L)													
AMMONIA	2/2	0.126	0.162	Und	0.144	0.162(d)	na	na	na	na	na	f	
FLUORIDE	2/2	0.190	0.210	Und	0.200	0.210(d)	na	na	na	na	na	f	
NITRATE	2/2	0.710	5.44	Und	3.08	5.44(d)	na	na	na	na	na	f	
SULFATE	2/2	47.6	51.3	Und	49.4	51.3	na	na	na	na	na	f	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
- na not applicable
- * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 76
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides pCi/L)													
URANIUM-238	1/1	15.9	15.9	Und	15.9	15.9(d)	na	na	na	Y	Y	a	
URANIUM-234	1/1	15.9	15.9	Und	15.9	15.9(d)	na	na	na	Y	Y	a	
THORIUM-230	0/1												
RADIUM-226	0/5												
URANIUM-235/236	0/1												
THORIUM-232	0/1												
RADIUM-228	0/5												
THORIUM-228	0/1												
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/1												
Metals (mg/L)													
ALUMINUM	1/1	0.0866	0.0866	Und	0.0866	0.0866(d)	na	na	na	N	N	b	
ARSENIC	0/1												
BARIUM	1/1	0.0399	0.0399	Und	0.0399	0.0399(d)	na	na	na	N	N	b	
CADMIUM	0/1												
CHROMIUM	0/1												
COPPER	0/1												
LEAD	1/1	0.0026	0.0026	Und	0.0026	0.0026(d)	na	na	na	na	na	c	Background - 0/2
MAGNESIUM	1/1	19.9	19.9	Und	19.9	19.9(d)	na	na	na	N	N	b	
MANGANESE	1/1	0.0097	0.0097	Und	0.0097	0.0097(d)	na	na	na	N	N	b	
MERCURY	0/1												
MOLYBDENUM	0/1												
NICKEL	0/1												
SELENIUM	0/1												
SILVER	0/1												
THORIUM, TOTAL	0/1												
URANIUM, TOTAL	5/5	0.0140	0.0440	Und	0.0236	0.0440(d)	na	na	na	Y	Y	a	
VANADIUM	0/1												

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 77
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	1/1	2.70	2.70	Und	2.70	2.70(d)	na	na	na	Y	Y	a
URANIUM-234	1/1	3.00	3.00	Und	3.00	3.00(d)	na	na	na	Y	Y	a
THORIUM-230	1/2	0.300	0.300	Und	0.300	0.300(d)	na	na	na	na	na	c Background - 0/2
RADIUM-226	0/2											
URANIUM-235/236	0/1											
THORIUM-232	0/2											
RADIUM-228	0/2											
THORIUM-228	0/2											
Metals (mg/L)												
ALUMINUM	0/3											
ANTIMONY	0/3											
ARSENIC	1/3	0.003	0.003	Und	0.003	0.003(d)	na	na	na	na	na	c Background - 0/2
BARIUM	3/3	0.042	0.050	Und	0.047	0.050(d)	na	na	na	N	Y	c
BERYLLIUM	0/3											
CADMIUM	0/3											
CHROMIUM	0/3											
COBALT	0/3											
COPPER	0/3											
CYANIDE	0/3											
LEAD	2/3	0.004	0.069	Und	0.037	0.069(d)	na	na	na	na	na	c Background - 0/2
MAGNESIUM	3/3	17.1	25.7	Und	21.9	25.7(d)	na	na	na	N	N	b
MANGANESE	3/3	0.010	0.054	Und	0.039	0.054(d)	na	na	na	Y	Y	a
MERCURY	0/3											
MOLYBDENUM	0/3											
NICKEL	0/3											
SELENIUM	0/2											
SILICON	3/3	2.72	2.97	Und	2.83	2.97(d)	na	na	na	N	N	b
SILVER	0/2											
THALLIUM	0/2											
URANIUM, TOTAL	2/2	0.004	0.009	Und	0.006	0.009(d)	na	na	na	Y	Y	a
VANADIUM	0/3											

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007755

TABLE A. IV - 77
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
ZINC	0/3											
Volatile Organics (ug/L)												
TRICHLOROETHENE	2/3	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	1/3	22.0	22.0	Und	22.0	22.0(d)	na	na	na	na	na	e
DI-N-OCTYL PHTHALATE	1/3	89.0	89.0	Und	89.0	89.0(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	2/3	0.071	0.154	Und	0.112	0.154(d)	na	na	na	na	na	f
FLUORIDE	3/3	0.180	0.190	Und	0.183	0.190(d)	na	na	na	na	na	f
SULFATE	3/3	42.3	58.8	Und	50.6	58.8(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:
- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement
- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000759

TABLE A. IV - 78
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	5/5	1.00	3.89	Und	2.59	3.89(d)	na	Y	na	Y	Y	a
URANIUM-234	5/5	1.00	7.04	Und	3.59	7.04(d)	na	Y	na	Y	Y	a
THORIUM-230	3/5	0.400	1.98	Und	1.21	1.98(d)	na	N	na	Y	Y	a
RADIUM-226	2/6	1.40	2.00	Und	1.70	2.00(d)	na	na	na	na	na	c Background - 0/2
URANIUM-235/236	0/5											
THORIUM-232	0/5											
RADIUM-228	1/6	3.70	3.70	Und	3.70	3.70(d)	na	na	na	na	na	c Background - 0/2
THORIUM-228	3/5	1.37	3.18	Und	2.18	3.18(d)	na	na	na	na	na	c Background - 0/2
NEPTUNIUM-237	0/1											
PLUTONIUM-239/240	0/3											
PLUTONIUM-238	0/3											
STRONTIUM-90	0/2											
TECHNETIUM-99	0/3											
RUTHENIUM-106	0/1											
CESIUM-137	0/1											
Metals (mg/L)												
ALUMINUM	0/3											
ANTIMONY	1/3	0.014	0.014	Und	0.014	0.014(d)	na	na	na	na	na	c Background - 0/2
ARSENIC	1/3	0.002	0.002	Und	0.002	0.002(d)	na	na	na	na	na	c Background - 0/2
BARIUM	3/3	0.044	0.049	Und	0.046	0.049(d)	na	na	na	N	N	b
BERYLLIUM	0/3											
CADMIUM	0/3											
CHROMIUM	0/3											
COBALT	0/3											
COPPER	0/3											
CYANIDE	0/3											
LEAD	1/3	0.004	0.004	Und	0.004	0.004(d)	na	na	na	na	na	c Background - 0/2
MAGNESIUM	3/3	17.4	26.7	Und	22.3	26.7(d)	na	na	na	N	N	b
MANGANESE	3/3	0.008	0.056	Und	0.036	0.056(d)	na	N	na	Y	Y	a
MERCURY	0/3											
MOLYBDENUM	0/3											

000758

TABLE A. IV - 78
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
NICKEL	0/3											
SELENIUM	0/2											
SILICON	3/3	2.64	2.90	Und	2.80	2.90(d)	na	N	na	N	N	b
SILVER	0/2											
THALLIUM	1/3	0.001	0.001	Und	0.001	0.001(d)	na	na	na	na	na	c Background - 0/1
THORIUM, TOTAL	1/3	0.0032	0.0032	Und	0.0032	0.0032(d)	na	na	na	na	na	c Background - 0/1
URANIUM, TOTAL	6/6	0.0028	0.0087	Und	0.0062	0.0087(d)	na	Y	na	Y	Y	a
VANADIUM	0/3											
ZINC	0/3											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000061

TABLE A. IV - 79
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	4/4	2.54	2.84	Und	2.67	2.84(d)	na	N	na	Y	Y	a
URANIUM-234	4/4	1.94	2.56	Und	2.24	2.56(d)	na	N	na	Y	Y	a
THORIUM-230	0/4											
RADIUM-226	0/4											
URANIUM-235/236	0/4											
THORIUM-232	0/4											
RADIUM-228	0/4											
THORIUM-228	3/4	2.12	4.82	Und	3.20	4.82(d)	na	na	na	na	na	c Background - 0/2
NEPTUNIUM-237	0/4											
PLUTONIUM-239/240	0/4											
PLUTONIUM-238	0/4											
STRONTIUM-90	0/4											
RUTHENIUM-106	0/3											
CESIUM-137	0/3											
Metals (mg/L)												
ALUMINUM	3/3	0.071	0.075	Und	0.072	0.075(d)	na	na	na	N	N	b
ARSENIC	0/3											
BARIUM	0/3											
CADMIUM	3/3	0.004	0.005	Und	0.004	0.005(d)	na	na	na	na	na	c Background - 0/2
CHROMIUM	3/3	0.017	0.018	Und	0.017	0.018(d)	na	na	na	na	na	c Background - 0/2
COPPER	3/3	0.011	0.012	Und	0.011	0.012(d)	na	na	na	na	na	c Background - 0/1
LEAD	0/3											
MAGNESIUM	3/3	22.5	23.8	Und	23.3	23.8(d)	na	na	na	N	N	b
MANGANESE	3/3	0.020	0.029	Und	0.025	0.029(d)	na	na	na	N	N	b
MERCURY	0/3											
MOLYBDENUM	0/3											
NICKEL	0/3											
SELENIUM	0/3											
SILICON	3/3	4.19	4.27	Und	4.23	4.27(d)	na	na	na	Y	Y	a
SILVER	3/3	0.018	0.019	Und	0.018	0.019(d)	na	na	na	na	na	c Background - 0/2
THORIUM, TOTAL	0/4											

000762

TABLE A. IV - 79
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
URANIUM, TOTAL	4/4	0.006	0.007	Und	0.007	0.007(d)	na	N	na	Y	Y	a	
VANADIUM	0/3												
General Chemistries (mg/L)													
AMMONIA	0/4												
FLUORIDE	4/4	0.270	0.300	Und	0.290	0.300(d)	na	na	na	na	na	e	
NITRATE	4/4	2.09	3.38	Und	2.50	3.38(d)	na	na	na	na	na	e	
SULFATE	4/4	36.9	85.4	Und	60.7	85.4(d)	na	na	na	na	na	e	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 80
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	4/4	1.32	3.47	Und	2.80	3.47(d)	na	na	na	Y	Y	a
URANIUM-234	4/4	3.09	3.88	Und	3.50	3.88(d)	na	na	na	Y	Y	a
THORIUM-230	1/4	1.80	1.80	Und	1.80	1.80(d)	na	na	N	Y	Y	a
RADIUM-226	0/4											
URANIUM-235/236	0/4											
THORIUM-232	0/4											
RADIUM-228	0/4											
THORIUM-228	2/4	1.09	5.480	Und	3.28	5.48(d)	na	na	na	na	na	c Background - 0/2
NEPTUNIUM-237	0/4											
PLUTONIUM-239/240	0/4											
PLUTONIUM-238	0/4											
STRONTIUM-90	0/4											
TECHNETIUM-99	2/4	59.9	62.500	Und	61.2	62.5(d)	na	na	na	na	na	c Background - 0/2
RUTHENIUM-106	0/4											
CESIUM-137	0/4											
Metals (mg/L)												
ALUMINUM	4/4	0.074	0.114	Und	0.092	0.114(d)	na	na	na	N	N	b
ANTIMONY	0/1											
ARSENIC	1/4	0.002	0.002	Und	0.002	0.002(d)	na	na	na	na	na	c Background - 0/2
BARIUM	3/4	0.036	0.040	Und	0.037	0.040(d)	na	na	na	N	N	b
BERYLLIUM	0/1											
CADMIUM	4/4	0.003	0.004	Und	0.003	0.004(d)	na	na	na	na	na	c Background - 0/2
CHROMIUM	4/4	0.017	0.026	Und	0.020	0.026(d)	na	na	na	na	na	c Background - 0/2
COBALT	0/1											
COPPER	2/4	0.010	0.011	Und	0.010	0.011(d)	na	na	na	na	na	c Background - 0/1
LEAD	0/4											
MAGNESIUM	4/4	22.1	27.2	Und	23.8	27.2(d)	na	na	na	N	N	b
MANGANESE	4/4	0.020	0.092	Und	0.039	0.092(d)	na	na	na	Y	Y	a
MERCURY	0/4											
MOLYBDENUM	0/4											
NICKEL	0/4											

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TABLE A. IV - 80
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SELENIUM	0/4											
SILICON	4/4	2.88	5.91	Und	4.05	5.91(d)	na	na	na	Y	Y	a
SILVER	4/4	0.019	0.022	Und	0.020	0.022(d)	na	na	na	na	na	c Background - 0/2
THALLIUM	0/1											
THORIUM, TOTAL	0/4											
URANIUM, TOTAL	4/4	0.008	0.011	Und	0.010	0.011(d)	na	na	na	Y	Y	a
VANADIUM	2/4	0.010	0.014	Und	0.012	0.014(d)	na	na	na	na	na	c Background - 0/1
ZINC	0/1											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

- (a) The upper 95% confidence limit for the normal distribution was used.
- (b) The upper 95% confidence limit for the lognormal distribution was used.
- (c) The nonparametric 95th percentile was used.
- (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
- (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

- a Constituent is selected as a CPC based on statistical analysis of the data.
- b Constituent is NOT selected as a CPC based on statistical analysis of the data.
- c Constituent is selected as a CPC based on inspection of the data.
- d Constituent is NOT selected as a CPC based on inspection of the data.
- e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
- f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

- na not applicable
- * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 81
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/1	0.800	0.800	Und	0.800	0.800(d)	na	na	na	Y	Y	a	
URANIUM-234	1/1	0.500	0.500	Und	0.500	0.500(d)	na	na	na	N	N	b	
THORIUM-230	0/1												
RADIUM-226	0/2												
URANIUM-235/236	0/1												
THORIUM-232	0/1												
RADIUM-228	0/2												
THORIUM-228	0/1												
TECHNETIUM-99	0/1												
Metals (mg/L)													
ALUMINUM	1/2	0.668	0.668	Und	0.668	0.668(d)	na	na	na	N	N	b	
ANTIMONY	0/2												
ARSENIC	1/2	0.0029	0.0029	Und	0.0029	0.0029(d)	na	na	na	N	N	b	
BARIUM	2/2	0.0895	0.101	Und	0.0948	0.101(d)	na	na	na	Y	Y	a	
BERYLLIUM	1/2	0.0077	0.0077	Und	0.0077	0.0077(d)	na	na	na	na	na	c	Background - 0/2
CADMIUM	0/2												
CHROMIUM	0/2												
COBALT	0/2												
COPPER	0/2												
CYANIDE	1/1	0.0061	0.0061	Und	0.0061	0.0061(d)	na	na	na	Y	Y	a	
LEAD	2/2	0.0069	0.0078	Und	0.0074	0.0078(d)	na	na	Y	N	N	b	
MAGNESIUM	2/2	27.2	32.4	Und	29.8	32.4(d)	na	na	na	N	N	b	
MANGANESE	2/2	0.0649	0.0895	Und	0.0772	0.0895(d)	na	na	na	Y	Y	a	
MERCURY	0/2												
MOLYBDENUM	0/2												
NICKEL	0/2												
SELENIUM	0/2												
SILVER	0/2												
THALLIUM	0/2												
URANIUM, TOTAL	2/2	0.0015	0.0021	Und	0.0018	0.0021(d)	na	na	na	Y	Y	a	
VANADIUM	0/2												

TABLE A. IV - 81
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
ZINC	0/2											
General Chemistries (mg/L)												
AMMONIA	1/2	0.0394	0.0394	Und	0.0394	0.0394(d)	na	na	na	na	na	f
FLUORIDE	2/2	0.250	0.300	Und	0.275	0.300(d)	na	na	na	na	na	f
NITRATE	1/1	3.68	3.68	Und	3.68	3.68(d)	na	na	na	na	na	f
SULFATE	2/2	61.0	61.1	Und	61.0	61.1(d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 82
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	2/2	0.700	0.800	Und	0.750	0.800(d)	na	na	na	Y	Y	a
URANIUM-234	2/2	0.600	0.900	Und	0.750	0.900(d)	na	na	na	Y	Y	a
THORIUM-230	2/2	0.300	0.400	Und	0.350	0.400(d)	na	na	na	N	N	b
RADIUM-226	1/2	2.80	2.80	Und	2.80	2.80(d)	na	na	na	na	na	c Background - 0/3
URANIUM-235/236	0/2											
THORIUM-232	0/2											
RADIUM-228	1/2	4.00	4.00	Und	4.00	4.00(d)	na	na	na	na	na	c Background - 0/3
THORIUM-228	0/2											
TECHNETIUM-99	0/1											
Metals (mg/L)												
ALUMINUM	0/2											
ANTIMONY	0/2											
ARSENIC	1/2	0.0024	0.0024	Und	0.0024	0.0024(d)	na	na	na	Y	Y	a
BARIUM	2/2	0.0315	0.0980	Und	0.0648	0.0980(d)	na	na	na	N	N	b
BERYLLIUM	0/2											
CADMIUM	1/2	0.0053	0.0053	Und	0.0053	0.0053(d)	na	na	na	na	na	c Background - 0/4
CHROMIUM	0/2											
COBALT	0/2											
COPPER	0/2											
CYANIDE	0/1											
LEAD	1/2	0.0014	0.0014	Und	0.0014	0.0014(d)	na	na	na	na	na	c Background - 0/3
MAGNESIUM	2/2	7.68	32.2	Und	19.9	32.2(d)	na	na	na	N	N	b
MANGANESE	1/2	0.0491	0.0491	Und	0.0491	0.0491(d)	na	na	na	na	na	c Background - 0/4
MERCURY	0/2											
MOLYBDENUM	0/2											
NICKEL	0/2											
SELENIUM	0/2											
SILICON	2/2	2.41	3.33	Und	2.87	3.33	na	na	na	Y	Y	a
SILVER	0/2											
THALLIUM	0/2											
URANIUM, TOTAL	2/2	0.0021	0.0025	Und	0.0023	0.0025(d)	na	na	na	Y	Y	a

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TABLE A. IV - 82
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
VANADIUM	0/2											
ZINC	0/2											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 83
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (PRE-1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	3/3	1.10	1.90	Und	1.60	1.90(d)	na	na	na	Y	Y	a
URANIUM-234	3/3	1.10	2.20	Und	1.73	2.20(d)	na	na	na	Y	Y	a
THORIUM-230	0/3											
RADIUM-226	0/3											
URANIUM-235/236	0/3											
THORIUM-232	0/3											
RADIUM-228	0/3											
THORIUM-228	2/3	1.50	1.80	Und	1.65	1.80(d)	na	na	na	Y	Y	a
NEPTUNIUM-237	0/3											
PLUTONIUM-239/240	0/3											
PLUTONIUM-238	0/3											
STRONTIUM-90	0/3											
TECHNETIUM-99	1/3	95.9	95.9	Und	95.9	95.9(d)	na	na	na	na	Y	c Background - 0/5
RUTHENIUM-106	0/2											
CESIUM-137	0/2											
Metals (mg/L)												
ARSENIC	2/3	0.0021	0.0060	Und	0.0041	0.0060(d)	na	na	na	Y	Y	a
BARIUM	3/3	0.100	0.108	Und	0.104	0.108(d)	na	na	na	Y	Y	a
CADMIUM	2/3	0.0025	0.0034	Und	0.0030	0.0034(d)	na	na	na	N	N	b
CHROMIUM	1/3	0.00370	0.00370	Und	0.00370	0.00370(d)	na	na	na	na	Y	c Background - 0/5
COPPER	0/3											
LEAD	2/3	0.0022	0.0900	Und	0.0461	0.0900(d)	na	na	N	Y	Y	a
MAGNESIUM	3/3	34.0	36.2	Und	35.2	36.2(d)	na	na	na	Y	Y	a
MANGANESE	3/3	0.0800	0.110	Und	0.0900	0.110(d)	na	na	na	Y	Y	a
MERCURY	0/3											
MOLYBDENUM	2/3	0.0200	0.0400	Und	0.0300	0.0400(d)	na	na	N	Y	Y	a
NICKEL	2/3	0.0107	0.0114	Und	0.0111	0.0114(d)	na	na	na	N	N	b
SELENIUM	0/3											
SILVER	0/3											
URANIUM, TOTAL	3/3	0.0030	0.0050	Und	0.0043	0.0050	na	na	na	Y	Y	a

TABLE A. IV - 83
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (PRE-1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
General Chemistries (mg/L)													
AMMONIA	3/3	0.600	1.40	Und	1.03	1.40(d)	na	na	na	na	na	f	
FLUORIDE	3/3	0.880	0.900	Und	0.887	0.900(d)	na	na	na	na	na	f	
NITRATE	3/3	6.76	7.68	Und	7.17	7.68(d)	na	na	na	na	na	f	
SULFATE	3/3	111	132	Und	118	132(d)	na	na	na	na	na	f	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 84
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	12/19	1.00	1.90	Norm	1.42	1.24(a)	na	na	na	Y	Y	a	
URANIUM-234	11/19	1.10	1.90	Und	1.49	1.90(d)	na	na	na	Y	Y	a	
THORIUM-230	0/19												
RADIUM-226	0/3												
URANIUM-235/236	0/19												
THORIUM-232	0/19												
RADIUM-228	0/3												
THORIUM-228	2/19	1.10	2.40	Und	1.75	2.40(d)	na	na	Y	Y	Y	a	
NEPTUNIUM-237	0/3												
PLUTONIUM-239/240	0/3												
PLUTONIUM-238	0/3												
STRONTIUM-90	0/19												
TECHNETIUM-99	11/19	33.7	57.2	Und	46.7	57.2(d)	na	na	na	Y	Y	a	
Metals (mg/L)													
ARSENIC	0/3												
BARIUM	3/3	0.0900	0.100	Und	0.0937	0.100(d)	na	na	na	N	N	b	
CADMIUM	1/3	0.0027	0.0027	Und	0.0027	0.0027(d)	na	na	na	na	na	c	Background - 0/4
CHROMIUM	0/3												
COPPER	0/3												
LEAD	2/3	0.0500	0.0800	Und	0.0650	0.0800(d)	na	na	na	na	na	c	Background - 0/3
MAGNESIUM	3/3	34.3	35.6	Und	35.0	35.6(d)	na	na	na	Y	Y	a	
MANGANESE	3/3	0.0020	0.0110	Und	0.0069	0.0110(d)	na	na	na	na	na	c	Background - 0/4
MERCURY	1/3	0.0010	0.0010	Und	0.0010	0.0010(d)	na	na	na	na	na	c	Background - 0/4
MOLYBDENUM	2/3	0.0300	0.0400	Und	0.0350	0.0400(d)	na	na	na	na	na	c	Background - 0/4
NICKEL	1/3	0.0113	0.0113	Und	0.0113	0.0113(d)	na	na	na	na	na	c	Background - 0/4
SELENIUM	0/3												
SILVER	0/3												
THORIUM, TOTAL	0/16												
URANIUM, TOTAL	19/19	.00200	.00700	Log	.00390	.00466(b)	na	na	na	Y	Y	a	

5697

0000777

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 85
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	2/2	0.500	0.500	Und	0.500	0.500(d)	na	na	na	N	N	b
URANIUM-234	2/2	0.700	0.700	Und	0.700	0.700(d)	na	na	na	N	N	b
THORIUM-230	1/2	0.400	0.400	Und	0.400	0.400(d)	na	na	na	Y	Y	a
RADIUM-226	1/2	1.60	1.60	Und	1.60	1.60(d)	na	na	N	Y	Y	a
URANIUM-235/236	0/2											
THORIUM-232	0/2											
RADIUM-228	0/2											
THORIUM-228	0/2											
TECHNETIUM-99	0/2											
Metals (mg/L)												
ALUMINUM	2/2	0.818	19.1	Und	9.96	19.1(d)	na	na	na	Y	Y	a
ANTIMONY	0/2											
ARSENIC	1/2	0.0060	0.0060	Und	0.0060	0.0060(d)	na	na	na	Y	Y	a
BARIUM	2/2	0.0940	0.228	Und	0.161	0.228(d)	na	na	na	Y	Y	a
BERYLLIUM	0/2											
CADMIUM	1/2	0.018	0.018	Und	0.018	0.0180(d)	na	na	na	Y	Y	a
CHROMIUM	1/2	0.0264	0.0264	Und	0.0264	0.264(d)	na	na	na	na	Y	c Background - 0/5
COBALT	0/2											
COPPER	1/2	0.0308	0.0308	Und	0.0308	0.0308(d)	na	na	N	Y	Y	a, c
CYANIDE	1/2	0.0214	0.0214	Und	0.0214	0.0214(d)	na	na	na	Y	Y	a
LEAD	2/2	0.0151	0.0442	Und	0.0297	0.0442(d)	na	na	Y	Y	Y	a
MAGNESIUM	2/2	31.6	47.5	Und	39.6	47.5(d)	na	na	na	Y	Y	a
MANGANESE	2/2	0.0792	0.561	Und	0.320	0.561(d)	na	na	na	Y	Y	a
MERCURY	0/2											
MOLYBDENUM	0/2											
NICKEL	1/2	0.0259	0.0259	Und	0.0259	0.0259(d)	na	na	na	Y	Y	a
SELENIUM	0/2											
SILICON	2/2	2.81	51.7	Und	27.2	51.7(d)	na	na	na	Y	Y	a
SILVER	0/2											
THALLIUM	0/2											
URANIUM, TOTAL	2/2	0.0013	0.0021	Und	0.0017	0.0021(d)	na	na	na	Y	Y	a

000779

TABLE A. IV - 85
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
VANADIUM	0/2												
ZINC	1/2	0.112	0.112	Und	0.112	0.112(d)	na	na	na	Y	Y	a	
Volatile Organics (µg/L)													
TRICHLOROETHENE	1/2	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e	
Semivolatile Organics (µg/L)													
BIS(2-ETHYLHEXYL)PHTHALATE	2/2	2.00	160	Und	81.0	160(d)	na	na	na	na	na	e	
DI-N-BUTYL PHTHALATE	1/2	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e	
DI-N-OCTYL PHTHALATE	1/2	2.00	2.00	Und	2.00	2.00(d)	na	na	na	na	na	e	
General Chemistries (mg/L)													
AMMONIA	1/2	0 0322	0.0322	Und	0.0322	0.0322(d)	na	na	na	na	na	f	
FLUORIDE	2/2	0.310	0.340	Und	0.325	0.340(d)	na	na	na	na	na	f	
SULFATE	2/2	61.6	66.8	Und	64.2	66.8(d)	na	na	na	na	na	f	

000780

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 86
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	2/2	0.400	0.600	Und	0.500	0.600(d)	na	na	na	Y	Y	a	
URANIUM-234	2/2	0.700	0.800	Und	0.750	0.800(d)	na	na	na	Y	Y	a	
THORIUM-230	2/2	0.400	0.700	Und	0.550	0.700(d)	na	na	na	Y	Y	a	
RADIUM-226	2/2	1.20	2.50	Und	1.85	2.50(d)	na	na	na	na	Y	c	Background - 0/3
URANIUM-235/236	0/2												
THORIUM-232	0/2												
RADIUM-228	2/2	3.20	4.60	Und	3.90	4.60(d)	na	na	na	na	Y	c	Background - 0/3
THORIUM-228	0/2												
TECHNETIUM-99	0/2												
Metals (mg/L)													
ALUMINUM	0/1												
ANTIMONY	0/1												
ARSENIC	1/1	0.0014	0.0014	Und	0.0014	0.0014(d)	na	na	na	N	N	b	
BARIUM	1/1	0.0941	0.0941	Und	0.0941	0.0941(d)	na	na	na	N	N	b	
BERYLLIUM	0/1												
CADMIUM	0/1												
CHROMIUM	0/1												
COBALT	0/1												
COPPER	0/1												
CYANIDE	0/2												
LEAD	0/1												
MAGNESIUM	1/1	31.1	31.1	Und	31.1	31.1(d)	na	na	na	N	N	b	
MANGANESE	0/1												
MERCURY	0/1												
MOLYBDENUM	0/1												
NICKEL	0/1												
SELENIUM	0/1												
SILVER	0/1												
THALLIUM	0/1												
URANIUM, TOTAL	2/2	0.00220	0.00280	Und	0.00250	0.00280(d)	na	na	na	Y	Y	a	
VANADIUM	0/1												

000782

TABLE A. IV - 86
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
ZINC	0/1											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 87
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	2/2	1.00	2.00	Und	1.50	2.00(d)	na	na	na	Y	Y	a	
URANIUM-234	2/2	1.10	1.80	Und	1.45	1.80(d)	na	na	na	Y	Y	a	
THORIUM-230	1/2	1.30	1.30	Und	1.30	1.30(d)	na	na	na	Y	Y	a	
RADIUM-226	0/2												
URANIUM-235/236	0/2												
THORIUM-232	0/2												
RADIUM-228	1/2	5.00	5.00	Und	5.00	5.00(d)	na	na	N	Y	Y	a	
THORIUM-228	1/2	2.60	2.60	Und	2.60	2.60(d)	na	na	na	Y	Y	a	
NEPTUNIUM-237	0/2												
PLUTONIUM-239/240	0/2												
PLUTONIUM-238	0/2												
STRONTIUM-90	0/2												
TECHNETIUM-99	0/2												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ARSENIC	1/2	0.0060	0.0060	Und	0.0060	0.0060(d)	na	na	na	Y	Y	a	
BARIUM	2/2	0.100	0.106	Und	0.103	0.106(d)	na	na	na	Y	Y	a	
CADMIUM	2/2	0.0010	0.0050	Und	0.0034	0.0050(d)	na	na	na	N	N	b	
CHROMIUM	0/2												
COPPER	0/2												
LEAD	0/2												
MAGNESIUM	2/2	35.1	36.9	Und	36.0	36.9(d)	na	na	na	Y	Y	a	
MANGANESE	2/2	0.100	0.100	Und	0.100	0.100(d)	na	na	na	Y	Y	a	
MERCURY	2/2	0.0006	0.0019	Und	0.0013	0.0019(d)	na	na	na	na	Y	c	Background - 0/4
MOLYBDENUM	1/2	0.0200	0.0200	Und	0.0200	0.0200(d)	na	na	N	N	N	b	
NICKEL	2/2	0.0070	0.0200	Und	0.0130	0.0200(d)	na	na	na	N	Y	c	
SELENIUM	0/2												
SILVER	0/2												
URANIUM, TOTAL	2/2	0.0030	0.0050	Und	0.0040	0.0050(d)	na	na	na	Y	Y	a	

TABLE A. IV - 87
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
General Chemistries (mg/L)													
AMMONIA	2/2	0.800	0.800	Und	0.800	0.800(d)	na	na	na	na	na	f	
FLUORIDE	2/2	0.880	0.900	Und	0.890	0.900(d)	na	na	na	na	na	f	
NITRATE	2/2	4.06	4.12	Und	4.09	4.12(d)	na	na	na	na	na	f	
SULFATE	2/2	191	192	Und	191	192(d)	na	na	na	na	na	f	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 88
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	1/2	1.80	1.80	Und	1.80	1.80(d)	na	na	na	Y	Y	a	
URANIUM-234	2/2	1.40	1.70	Und	1.55	1.70(d)	na	na	na	Y	Y	a	
THORIUM-230	0/2												
RADIUM-226	0/2												
URANIUM-235/236	0/2												
THORIUM-232	0/2												
RADIUM-228	0/2												
THORIUM-228	0/2												
NEPTUNIUM-237	0/2												
PLUTONIUM-239/240	0/2												
PLUTONIUM-238	0/2												
STRONTIUM-90	0/2												
TECHNETIUM-99	0/2												
RUTHENIUM-106	0/1												
CESIUM-137	0/1												
Metals (mg/L)													
ARSENIC	0/2												
BARIUM	2/2	0.090	0.0910	Und	0.090	0.0910(d)	na	na	na	N	Y	c	
CADMIUM	0/2												
CHROMIUM	0/2												
COPPER	0/2												
LEAD	1/2	0.0500	0.0500	Und	0.050	0.0500(d)	na	na	na	na	Y	c	Background - 0/3
MAGNESIUM	2/2	35.7	36.1	Und	35.9	36.1(d)	na	na	na	Y	Y	a	
MANGANESE	2/2	0.0020	0.0050	Und	0.0035	0.0050(d)	na	na	na	na	Y	c	Background - 0/4
MERCURY	0/2												
MOLYBDENUM	2/2	0.0300	0.0300	Und	0.0300	0.0300(d)	na	na	na	na	Y	c	Background - 0/4
NICKEL	0/2												
SELENIUM	0/2												
SILVER	1/2	0.130	0.130	Und	0.130	0.130(d)	na	na	na	na	Y	c	Background - 0/3
URANIUM, TOTAL	2/2	0.0020	0.0050	Und	0.0035	0.0050(d)	na	na	na	Y	Y	a	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000789

TABLE A. IV - 89
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER ABOVE OUTFALL LINE (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	0/1												
URANIUM-234	0/1												
THORIUM-230	0/1												
RADIUM-226	1/1	2.40	2.40	Und	2.40	2.40(d)	na	na	na	Y	Y	a	
URANIUM-235/236	0/1												
THORIUM-232	0/1												
RADIUM-228	0/1												
THORIUM-228	1/1	1.50	1.50	Und	1.50	1.50(d)	na	na	na	Y	Y	a	
NEPTUNIUM-237	0/1												
PLUTONIUM-239/240	0/1												
PLUTONIUM-238	0/1												
STRONTIUM-90	0/1												
TECHNETIUM-99	0/1												
Metals (mg/L)													
ARSENIC	0/1												
BARIUM	1/1	0.100	0.100	Und	0.100	0.100(d)	na	na	na	Y	Y	a	
CADMIUM	1/1	0.0031	0.0031	Und	0.0031	0.0031(d)	na	na	na	N	N	b	
CHROMIUM	1/1	0.0061	0.0061	Und	0.0061	0.0061(d)	na	na	na	na	Y	c	Background 0/5
COPPER	1/1	0.0119	0.0119	Und	0.0119	0.0119(d)	na	na	na	Y	Y	a	
LEAD	1/1	0.0021	0.0021	Und	0.0021	0.0021(d)	na	na	na	N	N	b	
MAGNESIUM	1/1	33.0	33.0	Und	33.0	33.0(d)	na	na	na	N	N	b	
MANGANESE	1/1	0.0600	0.0600	Und	0.0600	0.0600(d)	na	na	na	N	N	b	
MERCURY	1/1	0.0007	0.0007	Und	0.0007	0.0007(d)	na	na	na	na	Y	c	Background 0/4
MOLYBDENUM	1/1	0.0200	0.0200	Und	0.0200	0.0200(d)	na	na	na	Y	Y	a	
NICKEL	1/1	0.0131	0.0131	Und	0.0131	0.0131(d)	na	na	na	N	N	b	
SELENIUM	0/1												
SILVER	0/1												
URANIUM, TOTAL	1/1	0.0020	0.0020	Und	0.0020	0.0020(d)	na	na	na	Y	Y	a	
General Chemistries (mg/L)													
AMMONIA	1/1	1.90	1.90	Und	1.90	1.90(d)	na	na	na	na	na	f	
FLUORIDE	1/1	0.900	0.900	Und	0.900	0.900(d)	na	na	na	na	na	f	

TABLE A. IV - 89
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER ABOVE OUTFALL LINE (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NITRATE	1/1	8.27	8.27	Und	8.27	8.27(d)	na	na	na	na	na	f	
SULFATE	1/1	148	148	Und	148	148(d)	na	na	na	na	na	f	

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 90
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER ABOVE OUTFALL LINE (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	0/5											
URANIUM-234	0/5											
THORIUM-230	0/5											
RADIUM-226	0/1											
URANIUM-235/236	0/5											
THORIUM-232	0/5											
RADIUM-228	0/1											
THORIUM-228	1/5	1.30	1.30	Und	1.30	1.30(d)	na	na	N	Y	Y	a
NEPTUNIUM-237	0/1											
PLUTONIUM-239/240	0/1											
PLUTONIUM-238	0/1											
STRONTIUM-90	0/5											
TECHNETIUM-99	0/5											
Metals (mg/L)												
ARSENIC	0/1											
BARIUM	1/1	0.100	0.100	Und	0.100	0.100(d)	na	na	na	Y	Y	a
CADMIUM	0/1											
CHROMIUM	0/1											
COPPER	0/1											
LEAD	0/1											
MAGNESIUM	1/1	33.6	33.6	Und	33.6	33.6(d)	na	na	na	N	N	b
MANGANESE	0/1											
MERCURY	1/1	0.0002	0.0002	Und	0.0002	0.0002(d)	na	na	na	na	Y	c Background - 0/4
MOLYBDENUM	1/1	0.0600	0.0600	Und	0.0600	0.0600(d)	na	na	na	na	Y	c Background - 0/4
NICKEL	0/1											
SELENIUM	0/1											
SILVER	0/1											
THORIUM, TOTAL	0/4											
URANIUM, TOTAL	0/5											

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

ns not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 91
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	5/5	9.70	364	Und	164	364(d)	na	na	na	Y	Y	a
URANIUM-234	5/5	6.10	72.6	Und	38.5	72.6(d)	na	na	na	Y	Y	a
THORIUM-230	0/5											
RADIUM-226	0/5											
URANIUM-235/236	3/5	3.40	5.60	Und	4.77	5.60(d)	na	na	na	na	na	c Background - 0/2
THORIUM-232	0/5											
RADIUM-228	0/5											
THORIUM-228	0/5											
NEPTUNIUM-237	0/5											
PLUTONIUM-239/240	0/5											
PLUTONIUM-238	0/5											
STRONTIUM-90	0/5											
TECHNETIUM-99	1/5	83.8	83.8	Und	83.8	83.8(d)	na	na	na	na	na	c Background - 0/2
Metals (mg/L)												
ALUMINUM	2/2	0.161	0.232	Und	0.196	0.232(d)	na	na	na	N	N	b
ANTIMONY	0/2											
ARSENIC	0/2											
BARIUM	2/2	0.0472	0.0633	Und	0.0533	0.0633(d)	na	na	na	Y	Y	a
BERYLLIUM	1/2	0.0015	0.0015	Und	0.0015	0.0015(d)	na	na	na	na	na	c Background - 0/1
CADMIUM	1/2	0.0063	0.0063	Und	0.0063	0.0063(d)	na	na	na	na	na	c Background - 0/2
CHROMIUM	1/2	0.0175	0.0175	Und	0.0175	0.0175(d)	na	na	na	na	na	c Background - 0/1
COBALT	1/2	0.0136	0.0136	Und	0.0136	0.0136(d)	na	na	na	na	na	c Background - 0/1
COPPER	1/2	0.0156	0.0156	Und	0.0156	0.0156(d)	na	na	na	na	na	c Background - 0/1
CYANIDE	0/2											
LEAD	0/2											
MAGNESIUM	2/2	10.7	23.6	Und	17.2	23.6(d)	na	na	na	N	N	b
MANGANESE	2/2	0.0242	0.0651	Und	0.0447	0.0651(d)	na	na	na	Y	Y	a
MERCURY	1/2	0.0006	0.0006	Und	0.0006	0.0006(d)	na	na	na	na	na	c Background - 0/2
MOLYBDENUM	1/2	0.0230	0.0230	Und	0.0230	0.0230(d)	na	na	na	na	na	c Background - 0/2
NICKEL	2/2	0.0104	0.0159	Und	0.0132	0.0159(d)	na	na	na	na	na	c Background - 0/1
SELENIUM	0/2											

TABLE A. IV - 91
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (PRE 1992)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
SILVER	0/2											
THALLIUM	0/2											
URANIUM, TOTAL	5/5	0.0260	0.930	Und	0.441	0.930(d)	na	na	na	Y	Y	a
VANADIUM	2/2	0.0126	0.0187	Und	0.0157	0.0187(d)	na	na	na	na	na	f
ZINC	2/2	0.0147	0.0325	Und	0.0236	0.0325(d)	na	na	na	na	na	c Backgrounmd - 0/1
Semivolatile Organics (ug/L)												
DI-N-BUTYL PHTHALATE	1/2	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
DIETHYL PHTHALATE	1/2	3.00	3.00	Und	3.00	3.00(d)	na	na	na	na	na	e
General Chemistries (mg/L)												
AMMONIA	0/2											
FLUORIDE	2/2	0.140	0.440	Und	0.290	0.440(d)	na	na	na	na	na	f
NITRATE	2/2	1.80	2.30	Und	2.05	2.30(d)	na	na	na	na	na	f
SULFATE	2/2	36.8	129	Und	82.9	129(d)	na	na	na	na	na	f

000796

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000797

TABLE A. IV - 92
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (PRE 1992)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)	Comment (4)
Radionuclides (pCi/L)												
URANIUM-238	5/5	13.7	345	Und	161	345(d)	na	na	na	Y	Y	a
URANIUM-234	5/5	7.30	65.9	Und	38.9	65.9(d)	na	na	na	Y	Y	a
THORIUM-230	0/5											
RADIUM-226	0/5											
URANIUM-235/236	4/5	1.50	6.30	Und	4.42	6.30(d)	na	na	na	na	na	c Background - 0/2
THORIUM-232	0/5											
RADIUM-228	0/5											
THORIUM-228	0/5											
NEPTUNIUM-237	0/5											
PLUTONIUM-239/240	0/5											
PLUTONIUM-238	0/5											
STRONTIUM-90	0/5											
TECHNETIUM-99	2/5	41.3	88.5	Und	64.9	88.5(d)	na	na	na	na	na	c Background - 0/2
Metals (mg/L)												
URANIUM, TOTAL	5/5	0.0420	0.944	Und	0.463	0.944(d)	na	na	na	Y	Y	a

000298

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 93
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (92/93)
FILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Metals (mg/L)													
ALUMINUM	0/1												
ANTIMONY	0/1												
ARSENIC	0/1												
BARIUM	1/1	0.040	0.040	Und	0.040	0.040(d)	na	na	na	N	N	b	
BERYLLIUM	0/1												
CADMIUM	0/1												
CHROMIUM	0/1												
COBALT	0/1												
COPPER	0/1												
LEAD	0/1												
MAGNESIUM	1/1	25.7	25.7	Und	25.7	25.7(d)	na	na	na	N	N	b	
MANGANESE	1/1	0.185	0.185	Und	0.185	0.185(d)	na	na	na	Y	Y	a	
MERCURY	0/1												
MOLYBDENUM	0/1												
NICKEL	0/1												
SELENIUM	0/1												
SILVER	0/1												
THALLIUM	0/1												
VANADIUM	0/1												
ZINC	0/1												

000800

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 94
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
Radionuclides (pCi/L)													
URANIUM-238	2/2	18.7	20.2	Und	19.4	20.2(d)	na	na	na	Y	Y	a	
URANIUM-234	2/2	17.1	17.2	Und	17.2	17.2(d)	na	na	na	Y	Y	a	
THORIUM-230	0/1												
RADIUM-226	0/2												
URANIUM-235/236	2/2	0.846	1.30	Und	1.07	1.30(d)	na	na	na	na	na	f	
THORIUM-232	0/1												
RADIUM-228	0/2												
THORIUM-228	0/1												
NEPTUNIUM-237	0/2												
PLUTONIUM-239/240	0/2												
PLUTONIUM-238	0/2												
STRONTIUM-90	0/2												
TECHNETIUM-99	0/2												
RUTHENIUM-106	0/2												
CESIUM-137	0/2												
Metals (mg/L)													
ALUMINUM	1/2	0.140	0.140	Und	0.140	0.140(d)	na	na	na	N	N	b	
ANTIMONY	0/2												
ARSENIC	0/2												
BARIUM	2/2	0.038	0.040	Und	0.040	0.040(d)	na	na	na	N	N	b	
BERYLLIUM	0/2												
CADMIUM	0/2												
CHROMIUM	0/2												
COBALT	0/2												
COPPER	0/2												
CYANIDE	2/2	0.0024	0.0024	Und	0.0024	0.0024(d)	na	na	na	na	Y	c	Background - 0/2
LEAD	0/2												
MAGNESIUM	2/2	23.5	25.7	Und	24.6	25.7(d)	na	na	na	N	N	b	
MANGANESE	2/2	0.177	0.185	Und	0.181	0.185(d)	na	na	na	Y	Y	a	
MERCURY	0/2												
MOLYBDENUM	0/2												

000802

TABLE A. IV - 94
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCHES (92/93)
UNFILTERED SURFACE WATER

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Average of Positive Hits	Representative Concentration (2)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (3)		Comment (4)
NICKEL	0/2												
RUTHENIUM-106	0/2												
SELENIUM	0/2												
SILVER	0/2												
THALLIUM	0/2												
URANIUM, TOTAL	2/2	0.0461	0.0593	Und	0.0527	0.0593(d)	na	na	na	Y	Y	a	
THORIUM, TOTAL	0/1												
VANADIUM	0/2												
ZINC	0/1												
Semivolatile Organics (ug/L)													
BIS(2-ETHYLHEXYL)PHTHALATE	1/2	1.00	1.00	Und	1.00	1.00(d)	na	na	na	Y	Y	a	
General Chemistries (mg/L)													
AMMONIA	0/2												
FLUORIDE	2/2	0.19	0.22	Und	0.205	0.22(d)	na	na	na	na	na	f	
NITRATE	1/2	2.34	2.34	Und	2.34	2.34(d)	na	na	na	na	na	f	
SULFATE	1/2	61.0	61.0	Und	61.0	61.0(d)	na	na	na	na	na	f	

008003

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.

(2) Representative Concentration:

(a) The upper 95% confidence limit for the normal distribution was used.

(b) The upper 95% confidence limit for the lognormal distribution was used.

(c) The nonparametric 95th percentile was used.

(d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.

(e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.

(3) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.

(4) Comment: Professional Judgement

a Constituent is selected as a CPC based on statistical analysis of the data.

b Constituent is NOT selected as a CPC based on statistical analysis of the data.

c Constituent is selected as a CPC based on inspection of the data.

d Constituent is NOT selected as a CPC based on inspection of the data.

e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.

f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:

na not applicable

* The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 95
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PILOT PLANT DRAINAGE DITCH
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
RADIUM-226	1 / 1	0.686	0.686	Und	0.686	0.686 (d)	na	na	na	na	na	f
RADIUM-228	1 / 1	0.900	0.900	Und	0.900	0.900 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ANTIMONY	0 / 1											
CADMIUM	0 / 1											
CYANIDE	0 / 1											
LEAD	1 / 1	18.4	18.4	Und	18.4	18.4 (d)	na	na	na	na	na	f
MOLYBDENUM	0 / 1											
THALLIUM	0 / 1											
URANIUM, TOTAL	1 / 1	30.3	30.3	Und	30.3	30.3 (d)	na	na	na	na	na	f
General Chemistries (mg/kg)												
AMMONIA	1 / 1	93.6	93.6	Und	93.6	93.6 (d)	na	na	na	na	na	f
CHLORIDE	1 / 1	40.0	40.0	Und	40.0	40.0 (d)	na	na	na	na	na	f
FLUORIDE	1 / 1	5.69	5.69	Und	5.69	5.69 (d)	na	na	na	na	na	f
NITRATE	1 / 1	2.62	2.62	Und	2.62	2.62 (d)	na	na	na	na	na	f
PHOSPHORUS	1 / 1	38.9	38.9	Und	38.9	38.9 (d)	na	na	na	na	na	f
SULFATE	1 / 1	418	418	Und	418	418 (d)	na	na	na	na	na	f
TOTAL ORGANIC NITROGEN	1 / 1	794	794	Und	794	794 (d)	na	na	na	na	na	f

5697

000805

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  • The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 96
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 3											
NEPTUNIUM-237	0 / 3											
PLUTONIUM-238	0 / 3											
PLUTONIUM-239/240	0 / 3											
RADIUM-226	4 / 4	0.500	0.700	Und	0.609	0.700 (d)	na	na	na	na	na	f
RADIUM-228	2 / 4	0.600	0.703	Und	0.451	0.703 (d)	na	na	na	na	na	f
RUTHENIUM-106	0 / 3											
STRONTIUM-90	0 / 3											
TECHNETIUM-99	0 / 3											
THORIUM-228	1 / 3	0.400	0.400	Und	0.333	0.400 (d)	na	na	na	na	na	f
THORIUM-230	3 / 3	1.90	2.60	Und	2.33	2.60 (d)	na	na	na	na	na	f
THORIUM-232	2 / 3	0.300	0.800	Und	0.467	0.800 (d)	na	na	na	na	na	f
THORIUM, TOTAL	2 / 2	2.74	7.30	Und	5.02	7.30 (d)	na	na	na	na	na	f
URANIUM-234	2 / 2	0.400	3.80	Und	2.10	0.400 (e)	na	na	na	na	na	f
URANIUM-235/236	1 / 3	0.900	0.900	Und	0.500	0.900 (d)	na	na	na	na	na	f
URANIUM-238	2 / 2	0.20	4.60	Und	2.40	0.200 (e)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	2 / 2	2210	3890	Und	3050	3890 (d)	na	na	na	na	na	f
ANTIMONY	0 / 3											
ARSENIC	2 / 2	3.40	5.50	Und	4.45	5.50 (d)	na	na	na	na	na	f
BARIUM	2 / 2	19.3	38.1	Und	28.7	38.1 (d)	na	na	na	na	na	f
BERYLLIUM	1 / 2	1.30	1.30	Und	0.975	1.30 (d)	na	na	na	na	na	f
CADMIUM	0 / 1											
CHROMIUM	2 / 2	5.70	6.80	Und	6.25	6.80 (d)	na	na	na	na	na	f
COBALT	1 / 2	4.70	4.70	Und	3.45	4.70 (d)	na	na	na	na	na	f
COPPER	2 / 2	6.30	8.10	Und	7.20	8.10 (d)	na	na	na	na	na	f
CYANIDE	0 / 3											
LEAD	3 / 3	5.00	12.00	Und	9.17	12.0 (d)	na	na	na	na	na	f
MAGNESIUM	2 / 2	13900.00	19600.00	Und	16750.00	19600 (d)	na	na	na	na	na	f
MANGANESE	2 / 2	428.00	450.00	Und	439.00	450 (d)	na	na	na	na	na	f
MERCURY	0 / 2											

TABLE A. IV - 96
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
STORM SEWER OUTFALL DITCH
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
MOLYBDENUM	0 / 3											
NICKEL	2 / 2	5.60	9.00	Und	7.30	9.00 (d)	na	na	na	na	na	f
SILICON	2 / 2	426	831	Und	629	831 (d)	na	na	na	na	na	f
SILVER	0 / 2											
THALLIUM	0 / 2											
URANIUM, TOTAL	5 / 5	4.00	22.9	Und	10.5	22.9 (d)	na	na	na	na	na	f
VANADIUM	2 / 2	12.0	14.7	Und	13.4	14.7 (d)	na	na	na	na	na	f
ZINC	1 / 1	80.8	80.8	Und	80.8	80.8 (d)	na	na	na	na	na	f
Organics (ug/kg)												
BENZO(B)FLUORANTHENE	1 / 3	76.0	76.0	Und	164	76.0 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 3	96.0	96.0	Und	170	96.0 (d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	1 / 3	54.0	54.0	Und	158	54.0 (d)	na	na	na	na	na	e
FLUORANTHENE	2 / 3	50.0	110	Und	120	110 (d)	na	na	na	na	na	e
METHYLENE CHLORIDE	1 / 3	6.00	6.00	Und	6.83	6.00 (d)	na	na	na	na	na	e
PYRENE	1 / 3	74.0	74.0	Und	163	74.0 (d)	na	na	na	na	na	e
General Chemistries (mg/kg)												
AMMONIA	1 / 1	50.4	50.4	Und	50.4	50.4 (d)	na	na	na	na	na	f
CHLORIDE	1 / 1	230	230	Und	230	230 (d)	na	na	na	na	na	f
FLUORIDE	1 / 1	7.58	7.58	Und	7.58	7.58 (d)	na	na	na	na	na	f
NITRATE	1 / 1	2.76	2.76	Und	2.76	2.76 (d)	na	na	na	na	na	f
PHOSPHORUS	1 / 1	37.4	37.4	Und	37.4	37.4 (d)	na	na	na	na	na	f
SULFATE	1 / 1	697	697	Und	697	697 (d)	na	na	na	na	na	f
TOTAL ORGANIC NITROGEN	1 / 1	355	355	Und	355	355 (d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000809

TABLE A. IV - 97
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCH (B)
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
RADIUM-226	3 / 3	0.900	1.10	Und	1.03	1.10 (d)	na	na	na	na	na	f
RADIUM-228	3 / 3	0.900	1.30	Und	1.13	1.30 (d)	na	na	na	na	na	f
Metals (mg/kg)												
URANIUM, TOTAL	3 / 3	20.0	135	Und	64.7	135 (d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

000811

TABLE A. IV - 98
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ONSITE A
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 1											
NEPTUNIUM-237	0 / 1											
PLUTONIUM-238	0 / 1											
PLUTONIUM-239/240	0 / 1											
RADIUM-226	9 / 9	0.300	1.40	Log	0.578	0.941 (b)	na	na	na	na	na	f
RADIUM-228	1 / 9	0.800	0.800	Und	0.317	0.800 (d)	na	na	na	na	na	f
RUTHENIUM-106	0 / 1											
STRONTIUM-90	0 / 1											
TECHNETIUM-99	0 / 1											
THORIUM-228	6 / 7	0.300	0.700	Und	0.400	0.700 (d)	na	na	na	na	na	f
THORIUM-230	7 / 7	0.60	1.00	Norm	0.800	0.895 (a)	na	na	na	na	na	f
THORIUM-232	6 / 7	0.300	0.600	Und	0.414	0.600 (d)	na	na	na	na	na	f
URANIUM-235/236	1 / 5	0.200	0.200	Und	0.080	0.200 (d)	na	na	na	na	na	f
URANIUM-238	6 / 6	0.300	3.10	Und	1.12	3.10 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	9 / 9	888	9600	Log	3510	7340 (b)	na	na	na	na	na	f
ANTIMONY	0 / 6											
ARSENIC	9 / 9	2.00	6.50	Log	3.72	4.95 (b)	na	na	na	na	na	f
BARIUM	9 / 9	14.0	65.4	Norm	33.5	43.0 (a)	na	na	na	na	na	f
BERYLLIUM	7 / 9	0.50	3.50	Und	1.48	3.50 (d)	na	na	na	na	na	f
CADMIUM	3 / 7	3.90	5.50	Und	2.33	5.50 (d)	na	na	na	na	na	f
CHROMIUM	9 / 9	2.50	18.4	Log	9.96	18.4 (d)	na	na	na	na	na	f
COBALT	7 / 9	4.10	7.60	Norm	4.83	6.00 (a)	na	na	na	na	na	f
COPPER	9 / 9	3.30	14.5	Norm	9.68	12.0 (a)	na	na	na	na	na	f
CYANIDE	1 / 9	0.490	0.490	Und	0.554	0.490 (d)	na	na	na	na	na	f
LEAD	5 / 6	4.30	15.2	Und	6.98	15.2 (d)	na	na	na	na	na	f
MAGNESIUM	9 / 9	16800	72500	Log	30200	42000 (b)	na	na	na	na	na	f
MANGANESE	9 / 9	273	1270	Log	545	799 (b)	na	na	na	na	na	f
MERCURY	1 / 9	0.070	0.070	Und	0.042	0.070 (d)	na	na	na	na	na	f
MOLYBDENUM	0 / 9											
NICKEL	8 / 9	5.00	19.5	Log	11.1	19.5 (d)	na	na	na	na	na	f
SELENIUM	0 / 3											
SILICON	6 / 6	164	603	Und	443	603 (d)	na	na	na	na	na	f

000812

TABLE A. IV - 98
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN ONSITE A
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
SILVER	0 / 5											
THALLIUM	0 / 9											
THORIUM, TOTAL	6 / 6	2.74	5.47	Und	3.95	5.47 (d)	na	na	na	na	na	f
URANIUM, TOTAL	8 / 8	1.20	12.5	Und	5.09	11.0 (c)	na	na	na	na	na	f
VANADIUM	9 / 9	6.10	27.0	Log	15.1	21.8 (b)	na	na	na	na	na	f
ZINC	8 / 9	13.4	89.2	Log	32.3	66.5 (b)	na	na	na	na	na	f
Organics (ug/kg)												
BENZO(A)ANTHRACENE	2 / 7	49.0	140	Und	179	140 (d)	na	na	na	na	na	e
BENZO(A)PYRENE	1 / 7	130	130	Und	199	130 (d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2 / 7	59.0	240	Und	195	240 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2 / 7	69.0	300	Und	205	300 (d)	na	na	na	na	na	e
CHRYSENE	2 / 7	50.0	150	Und	181	150 (d)	na	na	na	na	na	e
DI-N-BUTYL PHTHALATE	3 / 7	53.0	80.0	Und	96.3	80.0 (d)	na	na	na	na	na	e
FLUORANTHENE	3 / 7	56.0	350	Und	203	350 (d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1 / 7	100	100	Und	195	100 (d)	na	na	na	na	na	e
METHYLENE CHLORIDE	2 / 9	3.00	7.00	Und	5.89	7.00 (d)	na	na	na	na	na	e
PYRENE	3 / 7	60.0	260	Und	185	260 (d)	na	na	na	na	na	e

5697

000813

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 99
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER AT CONFLUENCE WITH PADDYS RUN
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 1											
NEPTUNIUM-237	0 / 2											
PLUTONIUM-238	0 / 2											
PLUTONIUM-239/240	0 / 2											
RADIUM-226	1 / 1	0.400	0.400	Und	0.400	0.400 (d)	na	na	na	na	na	f
RADIUM-228	0 / 1											
RUTHENIUM-106	0 / 1											
STRONTIUM-90	0 / 1											
TECHNETIUM-99	0 / 2											
THORIUM-228	0 / 2											
THORIUM-230	1 / 2	1.10	1.10	Und	0.700	1.10 (d)	na	na	na	na	na	f
THORIUM-232	0 / 2											
URANIUM-234	1 / 2	0.700	0.700	Und	0.500	0.700 (d)	na	na	na	na	na	f
URANIUM-235/236	0 / 2											
URANIUM-238	1 / 2	0.900	0.900	Und	0.600	0.900 (d)	na	na	na	na	na	f
Metals (mg/kg)												
URANIUM, TOTAL	1 / 1	3.00	3.00	Und	3.00	3.00 (d)	na	na	na	na	na	f
THORIUM, TOTAL	1 / 1	2.00	2.00	Und	2.00	2.00 (d)	na	na	na	na	na	f

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Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 100
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER ABOVE OUTFALL LINE
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 1											
NEPTUNIUM-237	0 / 2											
PLUTONIUM-238	0 / 2											
PLUTONIUM-239/240	0 / 2											
RADIUM-226	1 / 1	0.400	0.400	Und	0.400	0.400 (d)	na	na	na	na	na	f
RADIUM-228	0 / 1											
RUTHENIUM-106	0 / 1											
STRONTIUM-90	0 / 1											
TECHNETIUM-99	0 / 2											
THORIUM-228	0 / 2											
THORIUM-230	2 / 2	1.80	1.90	Und	1.85	1.90 (d)	na	na	na	na	na	f
THORIUM-232	0 / 2											
URANIUM-234	0 / 2											
URANIUM-235/236	0 / 2											
URANIUM-238	1 / 2	0.600	0.600	Und	0.450	0.600 (d)	na	na	na	na	na	f
Metals (mg/kg)												
THORIUM, TOTAL	1 / 1	2.00	2.00	Und	2.00	2.00 (d)	na	na	na	na	na	f
URANIUM, TOTAL	1 / 1	1.00	1.00	Und	1.00	1.00 (d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 101
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 4											
NEPTUNIUM-237	0 / 6											
PLUTONIUM-238	0 / 6											
PLUTONIUM-239/240	0 / 6											
RADIUM-226	4 / 4	0.400	0.500	Und	0.436	0.500 (d)	na	na	na	na	na	f
RADIUM-228	0 / 4											
RUTHENIUM-106	0 / 4											
STRONTIUM-90	1 / 5	0.800	0.800	Und	0.360	0.800 (d)	na	na	na	na	na	f
TECHNETIUM-99	0 / 6											
THORIUM-228	1 / 6	0.400	0.400	Und	0.317	0.400 (d)	na	na	na	na	na	f
THORIUM-230	6 / 6	0.600	2.30	Und	1.32	2.30 (d)	na	na	na	na	na	f
THORIUM-232	1 / 6	0.400	0.40	Und	0.317	0.400 (d)	na	na	na	na	na	f
URANIUM-234	4 / 6	0.600	1.40	Und	0.667	1.40 (d)	na	na	na	na	na	f
URANIUM-235/236	0 / 6											
URANIUM-238	4 / 6	0.600	1.100	Und	0.600	1.10 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	1 / 1	11600	11600	Und	11600	11600 (d)	na	na	na	na	na	f
ANTIMONY	0 / 1											
ARSENIC	1 / 1	1.70	1.70	Und	1.70	1.70 (d)	na	na	na	na	na	f
BARIUM	1 / 1	130	130	Und	130	130 (d)	na	na	na	na	na	f
BERYLLIUM	0 / 1											
CADMIUM	0 / 1											
CHROMIUM	1 / 1	15.9	15.9	Und	15.9	15.9 (d)	na	na	na	na	na	f
COBALT	1 / 1	6.00	6.00	Und	6.00	6.00 (d)	na	na	na	na	na	f
COPPER	1 / 1	36.9	36.9	Und	36.9	36.9 (d)	na	na	na	na	na	f
CYANIDE	0 / 1											
LEAD	1 / 1	39.7	39.7	Und	39.7	39.7 (d)	na	na	na	na	na	f
MAGNESIUM	1 / 1	12300	12300	Und	12300	12300 (d)	na	na	na	na	na	f
MANGANESE	1 / 1	729	729	Und	729	729 (d)	na	na	na	na	na	f
MERCURY	0 / 1											
MOLYBDENUM	0 / 1											
NICKEL	1 / 1	19.8	19.8	Und	19.8	19.8 (d)	na	na	na	na	na	f
SELENIUM	1 / 1	0.750	0.750	Und	0.750	0.750 (d)	na	na	na	na	na	f

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TABLE A. IV - 101
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GREAT MIAMI RIVER BETWEEN OUTFALL LINE AND CONFLUENCE WITH PADDYS RUN
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
SILICON	1 / 1	308	308	Und	308	308 (d)	na	na	na	na	na	f
SILVER	0 / 1											
THALLIUM	0 / 1											
THORIUM, TOTAL	3 / 3	2.00	3.00	Und	2.33	3.00 (d)	na	na	na	na	na	f
URANIUM, TOTAL	4 / 4	1.00	2.00	Und	1.50	2.00 (d)	na	na	na	na	na	f
VANADIUM	1 / 1	22.1	22.1	Und	22.1	22.1 (d)	na	na	na	na	na	f
ZINC	1 / 1	96.9	96.9	Und	96.9	96.9 (d)	na	na	na	na	na	f
Organics (ug/kg)												
BENZO(A)ANTHRACENE	1 / 1	2600	2600	Und	2600	2600 (d)	na	na	na	na	na	e
BENZO(A)PYRENE	1 / 1	2100	2100	Und	2100	2100 (d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1 / 1	2700	2700	Und	2700	2700 (d)	na	na	na	na	na	e
BENZO(G,H,I)PERYLENE	1 / 1	1300	1300	Und	1300	1300 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 1	2100	2100	Und	2100	2100 (d)	na	na	na	na	na	e
CHRYSENE	1 / 1	2700	2700	Und	2700	2700 (d)	na	na	na	na	na	e
DIBENZO(A,H)ANTHRACENE	1 / 1	580	580	Und	580	580 (d)	na	na	na	na	na	e
DIBENZOFURAN	1 / 1	63.00	63.00	Und	63.00	63.0 (d)	na	na	na	na	na	e
FLUORANTHENE	1 / 1	5500	5500	Und	5500	5500 (d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	1 / 1	1600	1600	Und	1600	1600 (d)	na	na	na	na	na	e
PYRENE	1 / 1	4400	4400	Und	4400	4400 (d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 102
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
BACKGROUND (W-1)
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 1											
NEPTUNIUM-237	0 / 1											
PLUTONIUM-238	0 / 1											
PLUTONIUM-239/240	0 / 1											
RADIUM-226	1 / 1	0.400	0.400	Und	0.400	0.400 (d)	na	na	na	na	na	f
RADIUM-228	0 / 1											
RUTHENIUM-106	0 / 1											
STRONTIUM-90	0 / 1											
TECHNETIUM-99	0 / 1											
THORIUM 228	0 / 1											
THORIUM-230	1 / 1	1.00	1.00	Und	1.00	1.00 (d)	na	na	na	na	na	f
THORIUM-232	1 / 1	0.800	0.800	Und	0.800	0.800 (d)	na	na	na	na	na	f
THORIUM, TOTAL	1 / 1	7.30	7.30	Und	7.30	7.30 (d)	na	na	na	na	na	f
URANIUM-234	1 / 1	0.700	0.700	Und	0.700	0.700 (d)	na	na	na	na	na	f
URANIUM-235/236	0 / 2											
URANIUM-238	1 / 1	1.20	1.20	Und	1.20	1.20 (d)	na	na	na	na	na	f
Metals (mg/kg)												
URANIUM, TOTAL	1 / 1	1.00	1.00	Und	1.00	1.00 (d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  • The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 103
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
GRAVEL PIT - EAST
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
RADIUM-226	1 / 1	1.20	1.20	Und	1.20	1.20 (d)	na	na	na	na	na	f
RADIUM-228	1 / 1	0.900	0.900	Und	0.900	0.900 (d)	na	na	na	na	na	f
THORIUM-228	1 / 1	0.600	0.600	Und	0.600	0.600 (d)	na	na	na	na	na	f
THORIUM-230	1 / 1	1.10	1.10	Und	1.10	1.10 (d)	na	na	na	na	na	f
THORIUM-232	1 / 1	0.600	0.600	Und	0.600	0.600 (d)	na	na	na	na	na	f
THORIUM, TOTAL	1 / 1	5.47	5.47	Und	5.47	5.47 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	1 / 1	10200	10200	Und	10200	10200 (d)	na	na	na	na	na	f
ANTIMONY	0 / 1											
ARSENIC	1 / 1	5.70	5.70	Und	5.70	5.70 (d)	na	na	na	na	na	f
BARIUM	1 / 1	89.3	89.3	Und	89.3	89.3 (d)	na	na	na	na	na	f
BERYLLIUM	0 / 1											
CADMIUM	0 / 1											
CHROMIUM	1 / 1	11.1	11.1	Und	11.1	11.1 (d)	na	na	na	na	na	f
COBALT	1 / 1	8.00	8.00	Und	8.00	8.00 (d)	na	na	na	na	na	f
COPPER	1 / 1	13.3	13.3	Und	13.3	13.3 (d)	na	na	na	na	na	f
CYANIDE	0 / 1											
LEAD	1 / 1	10.0	10.0	Und	10.0	10.0 (d)	na	na	na	na	na	f
MAGNESIUM	1 / 1	11300	11300	Und	11300	11300 (d)	na	na	na	na	na	f
MANGANESE	1 / 1	465	465	Und	465	465 (d)	na	na	na	na	na	f
MERCURY	1 / 1	0.070	0.070	Und	0.070	0.070 (d)	na	na	na	na	na	f
MOLYBDENUM	0 / 1											
NICKEL	1 / 1	15.0	15.0	Und	15.0	15.0 (d)	na	na	na	na	na	f
SILICON	1 / 1	390	390	Und	390	390 (d)	na	na	na	na	na	f
THALLIUM	0 / 1											
URANIUM, TOTAL	1 / 1	2.20	2.20	Und	2.20	2.20 (d)	na	na	na	na	na	f
VANADIUM	1 / 1	24.2	24.2	Und	24.2	24.2 (d)	na	na	na	na	na	f
ZINC	1 / 1	55.1	55.1	Und	55.1	55.1 (d)	na	na	na	na	na	f

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

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TABLE A. IV - 104
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE FEMP
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
RADIUM-226	1 / 1	0.700	0.700	Und	0.700	0.700 (d)	na	na	na	na	na	f
RADIUM-228	0 / 1											
THORIUM-228	1 / 1	0.800	0.800	Und	0.800	0.800 (d)	na	na	na	na	na	f
THORIUM-230	1 / 1	1.20	1.20	Und	1.20	1.20 (d)	na	na	na	na	na	f
THORIUM-232	1 / 1	0.800	0.800	Und	0.800	0.800 (d)	na	na	na	na	na	f
THORIUM, TOTAL	1 / 1	7.30	7.30	Und	7.30	7.30 (d)	na	na	na	na	na	f
URANIUM-234	1 / 1	0.600	0.600	Und	0.600	0.600 (d)	na	na	na	na	na	f
URANIUM-238	1 / 1	0.500	0.500	Und	0.500	0.500 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	1 / 1	4870	4870	Und	4870	4870 (d)	na	na	na	na	na	f
ANTIMONY	0 / 1											
ARSENIC	1 / 1	11.7	11.7	Und	11.7	11.7 (d)	na	na	na	na	na	f
BARIUM	1 / 1	90.4	90.4	Und	90.4	90.4 (d)	na	na	na	na	na	f
BERYLLIUM	1 / 1	3.00	3.00	Und	3.00	3.00 (d)	na	na	na	na	na	f
CADMIUM	0 / 1											
CHROMIUM	1 / 1	9.20	9.20	Und	9.20	9.20 (d)	na	na	na	na	na	f
COBALT	1 / 1	12.1	12.1	Und	12.1	12.1 (d)	na	na	na	na	na	f
COPPER	1 / 1	13.5	13.5	Und	13.5	13.5 (d)	na	na	na	na	na	f
CYANIDE	1 / 1	0.390	0.390	Und	0.390	0.390 (d)	na	na	na	na	na	f
LEAD	1 / 1	78.4	78.4	Und	78.4	78.4 (d)	na	na	na	na	na	f
MAGNESIUM	1 / 1	20900	20900	Und	20900	20900 (d)	na	na	na	na	na	f
MANGANESE	1 / 1	1400	1400	Und	1400	1400 (d)	na	na	na	na	na	f
MERCURY	0 / 1											
MOLYBDENUM	0 / 1											
NICKEL	1 / 1	17.7	17.7	Und	17.7	17.7 (d)	na	na	na	na	na	f
SILICON	1 / 1	1140	1140	Und	1140	1140 (d)	na	na	na	na	na	f
THALLIUM	0 / 1											
URANIUM, TOTAL	1 / 1	3.90	3.90	Und	3.90	3.90 (d)	na	na	na	na	na	f
VANADIUM	1 / 1	24.3	24.3	Und	24.3	24.3 (d)	na	na	na	na	na	f
ZINC	1 / 1	86.1	86.1	Und	86.1	86.1 (d)	na	na	na	na	na	f

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TABLE A. IV - 104
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHEAST CORNER OF THE FEMP
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Organics (ug/kg)												
4-METHYLPHENOL	1 / 1	200	200	Und	200	200 (d)	na	na	na	na	na	e
BENZO(A)ANTHRACENE	1 / 1	83.0	83.0	Und	83.0	83.0 (d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	1 / 1	82.0	82.0	Und	82.0	82.0 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	1 / 1	81.0	81.0	Und	81.0	81.0 (d)	na	na	na	na	na	e
CHRYSENE	1 / 1	84.0	84.0	Und	84.0	84.0 (d)	na	na	na	na	na	e
DI-N-BUTYL PHTHALATE	1 / 1	81.0	81.0	Und	81.0	81.0 (d)	na	na	na	na	na	e
FLUORANTHENE	1 / 1	180	180	Und	180	180 (d)	na	na	na	na	na	e
PYRENE	1 / 1	130	130	Und	130	130 (d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  • The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 105
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCH (A)
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
CESIUM-137	0 / 2											
NEPTUNIUM-237	1 / 2	0.625	0.625	Und	0.363	0.625 (d)	na	na	na	na	na	f
PLUTONIUM-238	0 / 2											
PLUTONIUM-239/240	0 / 2											
RADIUM-226	4 / 4	0.800	1.06	Und	0.958	1.00 (c)	na	na	na	na	na	f
RADIUM-228	4 / 4	0.750	1.32	Und	1.04	1.10 (c)	na	na	na	na	na	f
RUTHENIUM-106	0 / 2											
STRONTIUM-90	3 / 3	0 586	0 990	Und	0.745	0.990 (d)	na	na	na	na	na	f
TECHNETIUM-99	0 / 2											
THORIUM-228	1 / 1	0 730	0.730	Und	0.730	0.730 (d)	na	na	na	na	na	f
THORIUM-230	1 / 1	1.05	1.05	Und	1.05	1.05 (d)	na	na	na	na	na	f
THORIUM-232	1 / 1	0.570	0.570	Und	0.570	0.570 (d)	na	na	na	na	na	f
URANIUM-234	2 / 2	3.66	7.29	Und	5.48	3.66 (e)	na	na	na	na	na	f
URANIUM-235/236	2 / 2	0.250	0.370	Und	0.310	0.250 (e)	na	na	na	na	na	f
URANIUM-238	2 / 2	4.56	10.8	Und	7.68	4.56 (e)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	3 / 3	7010	10900	Und	8760	10900 (d)	na	na	na	na	na	f
ANTIMONY	0 / 2											
ARSENIC	3 / 3	4.50	10.4	Und	6.73	10.4 (d)	na	na	na	na	na	f
BARIUM	3 / 3	55.9	114	Und	77.5	114 (d)	na	na	na	na	na	f
BERYLLIUM	1 / 3	0.830	0.830	Und	0.758	0.830 (d)	na	na	na	na	na	f
CADMIUM	0 / 3											
CHROMIUM	2 / 3	11.5	13.1	Und	10.1	13.1 (d)	na	na	na	na	na	f
COBALT	2 / 3	6.40	10.9	Und	7.65	10.9 (d)	na	na	na	na	na	f
COPPER	3 / 3	11.9	19.2	Und	15.5	19.2 (d)	na	na	na	na	na	f
CYANIDE	0 / 3											
LEAD	3 / 3	11.4	23.2	Und	16.2	23.2 (d)	na	na	na	na	na	f
MAGNESIUM	3 / 3	5070	26000	Und	17900	26000 (d)	na	na	na	na	na	f
MANGANESE	3 / 3	424	1640	Und	903	1640 (d)	na	na	na	na	na	f
MERCURY	0 / 3											
MOLYBDENUM	1 / 3	6.60	6.60	Und	6.95	6.60 (d)	na	na	na	na	na	f
NICKEL	2 / 3	16.4	21.7	Und	16.5	21.7 (d)	na	na	na	na	na	f
SELENIUM	0 / 3											

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TABLE A. IV - 105
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
NORTHERN AREA DRAINAGE DITCH (A)
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
SILICON	2 / 2	1280	1330	Und	1305	1330 (d)	na	na	na	na	na	f
SILVER	2 / 3	4.20	6.80	Und	5.55	6.80 (d)	na	na	na	na	na	f
THALLIUM	1 / 3	0.760	0.760	Und	0.492	0.760 (d)	na	na	na	na	na	f
THORIUM, TOTAL	1 / 1	5.20	5.20	Und	5.20	5.20 (d)	na	na	na	na	na	f
URANIUM, TOTAL	4 / 5	14.7	30.9	Und	16.9	30.9 (d)	na	na	na	na	na	f
VANADIUM	3 / 3	19.0	29.8	Und	24.2	29.8 (d)	na	na	na	na	na	f
ZINC	3 / 3	45.7	72.6	Und	62.1	72.6 (d)	na	na	na	na	na	f
Organics (ug/kg)												
BENZO(A)ANTHRACENE	2 / 3	170	500	Und	298	500 (d)	na	na	na	na	na	e
BENZO(A)PYRENE	2 / 3	180	550	Und	318	550 (d)	na	na	na	na	na	e
BENZO(B)FLUORANTHENE	2 / 3	180	730	Und	378	730 (d)	na	na	na	na	na	e
BENZO(K)FLUORANTHENE	2 / 3	180	270	Und	225	270 (d)	na	na	na	na	na	e
BIS(2-ETHYLHEXYL)PHTHALATE	2 / 3	53.0	140	Und	139	140 (d)	na	na	na	na	na	e
CARBAZOLE	1 / 2	120	120	Und	173	120 (d)	na	na	na	na	na	e
CHRYSENE	2 / 3	230	510	Und	322	510 (d)	na	na	na	na	na	e
FLUORANTHENE	2 / 3	390	1400	Und	672	1400 (d)	na	na	na	na	na	e
INDENO(1,2,3-CD)PYRENE	2 / 3	150	310	Und	228	310 (d)	na	na	na	na	na	e
PYRENE	3 / 3	58.0	990	Und	459	990 (d)	na	na	na	na	na	e

Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background: Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers:
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

TABLE A. IV - 106
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
Radionuclides (pCi/g)												
RADIUM-226	4 / 4	0.300	1.10	Und	0.550	1.10 (d)	na	na	na	na	na	f
RADIUM-228	2 / 4	0.600	0.600	Und	0.425	0.600 (d)	na	na	na	na	na	f
THORIUM-228	3 / 3	0.300	0.400	Und	0.333	0.400 (d)	na	na	na	na	na	f
THORIUM-230	3 / 3	0.500	0.800	Und	0.633	0.800 (d)	na	na	na	na	na	f
THORIUM-232	3 / 3	0.200	0.400	Und	0.300	0.400 (d)	na	na	na	na	na	f
THORIUM, TOTAL	3 / 3	1.82	3.65	Und	2.74	3.65 (d)	na	na	na	na	na	f
URANIUM-234	4 / 4	0.400	0.800	Und	0.550	0.800 (d)	na	na	na	na	na	f
URANIUM-235/236	0 / 4											
URANIUM-238	4 / 4	0.400	0.700	Und	0.500	0.700 (d)	na	na	na	na	na	f
Metals (mg/kg)												
ALUMINUM	3 / 3	1430	2250	Und	1850	2250 (d)	na	na	na	na	na	f
ANTIMONY	0 / 3											
ARSENIC	3 / 3	2.40	4.80	Und	3.37	4.80 (d)	na	na	na	na	na	f
BARIUM	3 / 3	17.4	31.6	Und	26.2	31.6 (d)	na	na	na	na	na	f
BERYLLIUM	2 / 3	1.80	1.80	Und	1.42	1.80 (d)	na	na	na	na	na	f
CADMIUM	0 / 2											
CHROMIUM	3 / 3	3.40	5.50	Und	4.43	5.50 (d)	na	na	na	na	na	f
COBALT	0 / 3											
COPPER	3 / 3	4.60	7.60	Und	5.60	7.60 (d)	na	na	na	na	na	f
CYANIDE	0 / 3											
LEAD	3 / 3	4.70	9.60	Und	6.77	9.60 (d)	na	na	na	na	na	f
MAGNESIUM	3 / 3	22600	27300	Und	25000	27300 (d)	na	na	na	na	na	f
MANGANESE	3 / 3	336	499	Und	399	499 (d)	na	na	na	na	na	f
MERCURY	0 / 3											
MOLYBDENUM	0 / 3											
NICKEL	2 / 3	5.70	6.10	Und	4.73	6.10 (d)	na	na	na	na	na	f
SILICON	3 / 3	237	626	Und	484	626 (d)	na	na	na	na	na	f
SILVER	1 / 1	0.250	0.250	Und	0.250	0.250 (d)	na	na	na	na	na	f
THALLIUM	0 / 3											
URANIUM, TOTAL	7 / 7	1.50	11.0	Und	5.74	11.0 (d)	na	na	na	na	na	f
VANADIUM	3 / 3	7.20	16.8	Und	11.2	16.8 (d)	na	na	na	na	na	f

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TABLE A. IV - 106
FINAL SELECTION OF CONSTITUENTS OF POTENTIAL CONCERN
PADDYS RUN OFFSITE
SEDIMENT

Constituents	Frequency of Detection	Minimum Detect	Maximum Detect	Dist. (1)	Mean (2)	Representative Concentration (3)	T-Test Y-reject Ho N-accept Ho na-not applicable	WRS Test Y-reject Ho N-accept Ho na-not applicable	Test of Proportions Y-reject Ho N-accept Ho na-not applicable	Exceed the 95th Percentile Y-Yes N-No na-not applicable	Above Back-ground Y-Yes N-No (4)	Comment (5)
ZINC	2 / 2	47.8	49.7	Und	48.8	49.7 (d)	na	na	na	na	na	f
Organics (ug/kg)												
METHYLENE CHLORIDE	1 / 3	6.00	6.00	Und	6.17	6.00 (d)	na	na	na	na	na	e

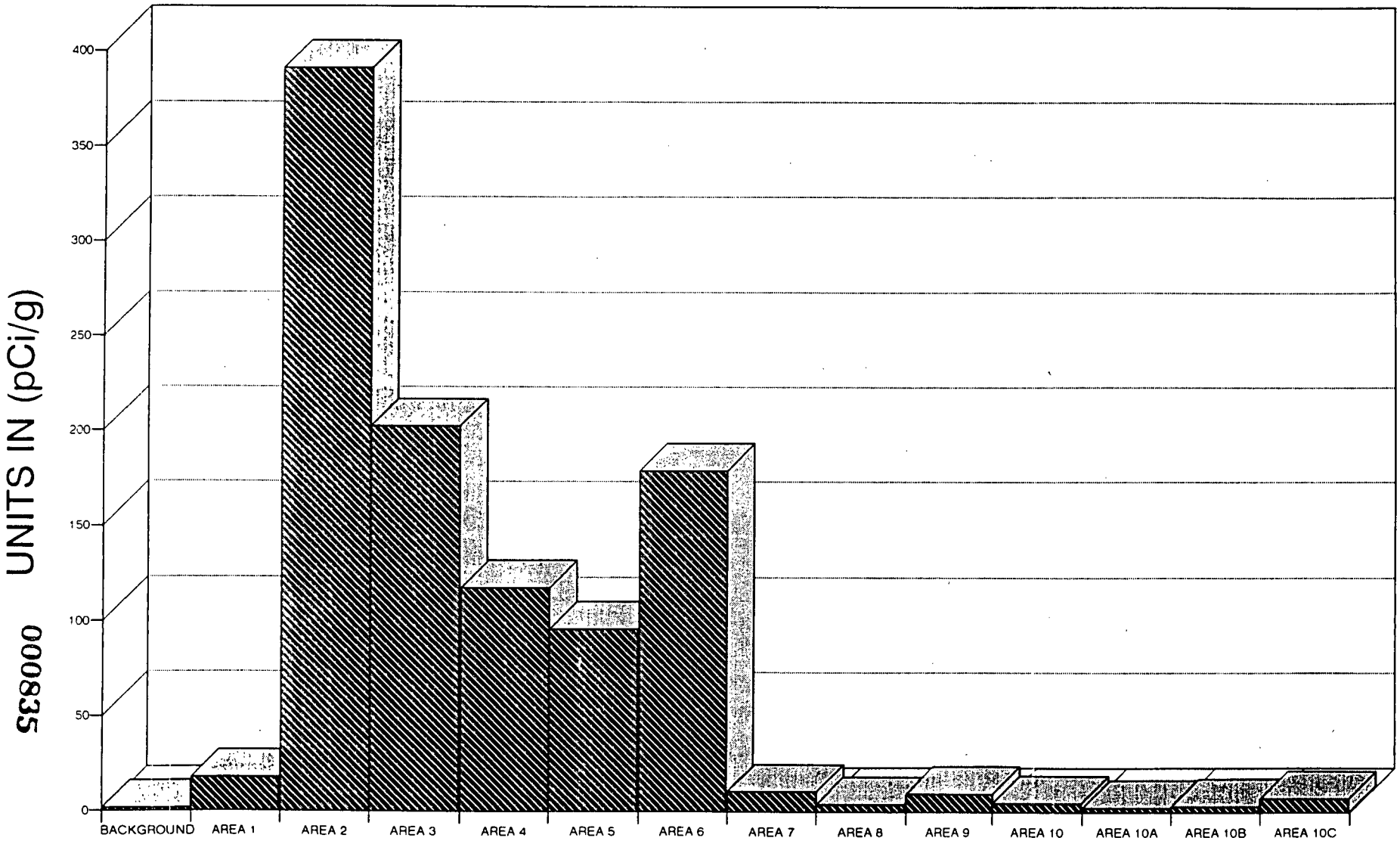
Notes

(1) Distribution: Norm = Normal; Log = Lognormal; Und = Undefined.
(2) Mean: An average of positive hits was not calculated.
(3) Representative Concentration:
  (a) The upper 95% confidence limit for the normal distribution was used.
  (b) The upper 95% confidence limit for the lognormal distribution was used.
  (c) The nonparametric 95th percentile was used.
  (d) The maximum detected value was used for one or more of the following reasons: There were less than 7 samples; the sample set had less than 50% detects; the 95th percentile (nonparametric) was greater than the maximum detect in an undefined distribution; the upper confidence limit (normal or lognormal) in the appropriately defined distribution was greater than the maximum detect.
  (e) The minimum detected value was used, because the 95th percentile-nonparametric was a non-detect value.
(4) Above Background Metals and radionuclides detected at concentrations exceeding background were selected as CPCs as indicated by a Y. Organics detected at concentrations exceeding the EPA RAGS, Part B (EPA 1991) toxicity screen were retained as CPCs.
(5) Comment: Professional Judgement
  a Constituent is selected as a CPC based on statistical analysis of the data.
  b Constituent is NOT selected as a CPC based on statistical analysis of the data.
  c Constituent is selected as a CPC based on inspection of the data.
  d Constituent is NOT selected as a CPC based on inspection of the data.
  e Constituent is selected as a CPC based on the EPA RAGS, Part B toxicity screen as presented in Section A.2.0.
  f Constituent is selected as a CPC since no background samples were available for statistical comparison.

Statistical test qualifiers
  na not applicable
  * The statistical test concluded that a statistically significant difference exists between the background and the study area data. However, by inspection, it was evident that the background data set was the greater of the two data sets.

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



URANIUM 234

Figure A.IV-1

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000835

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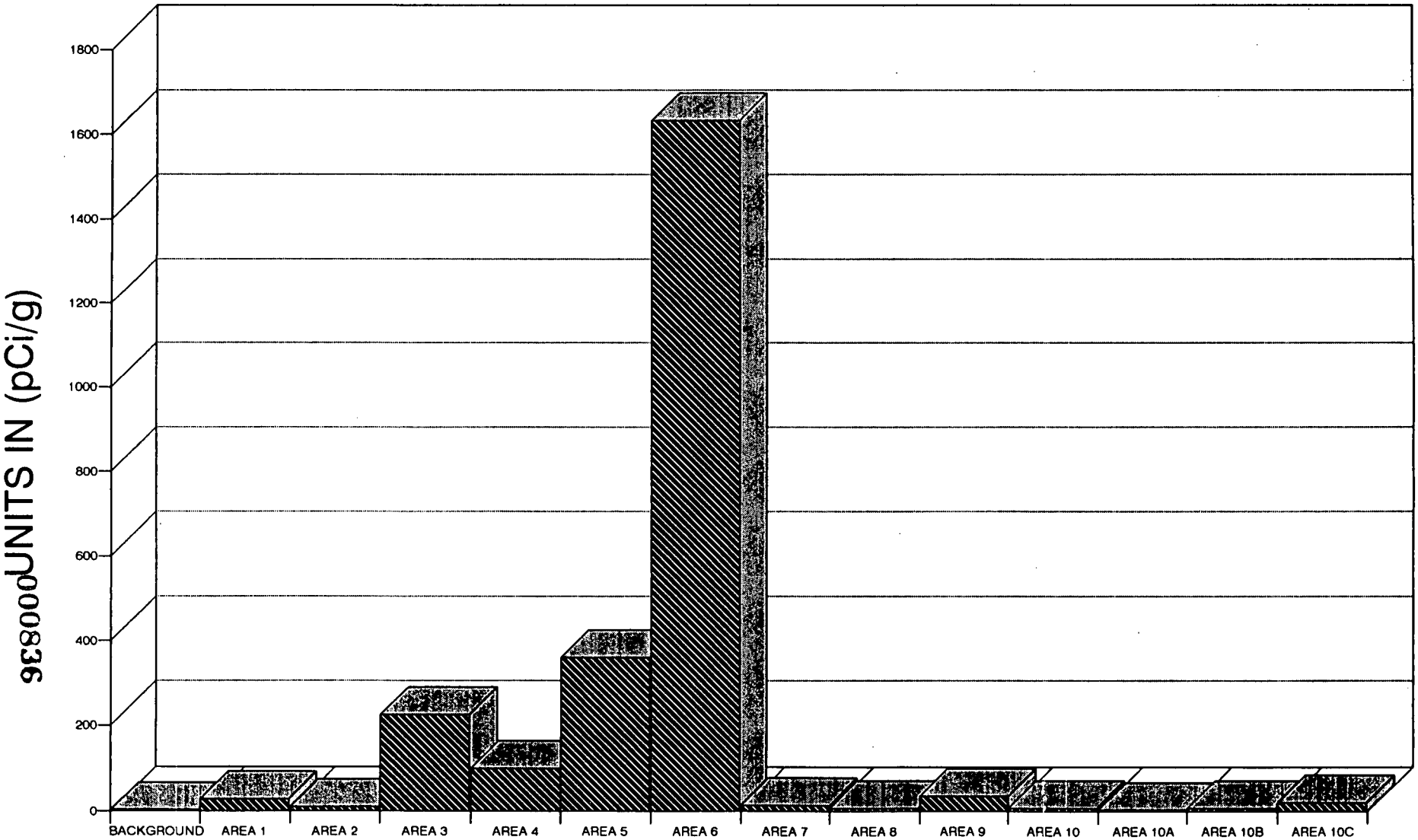
EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



URANIUM 234

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Figure A.IV-2

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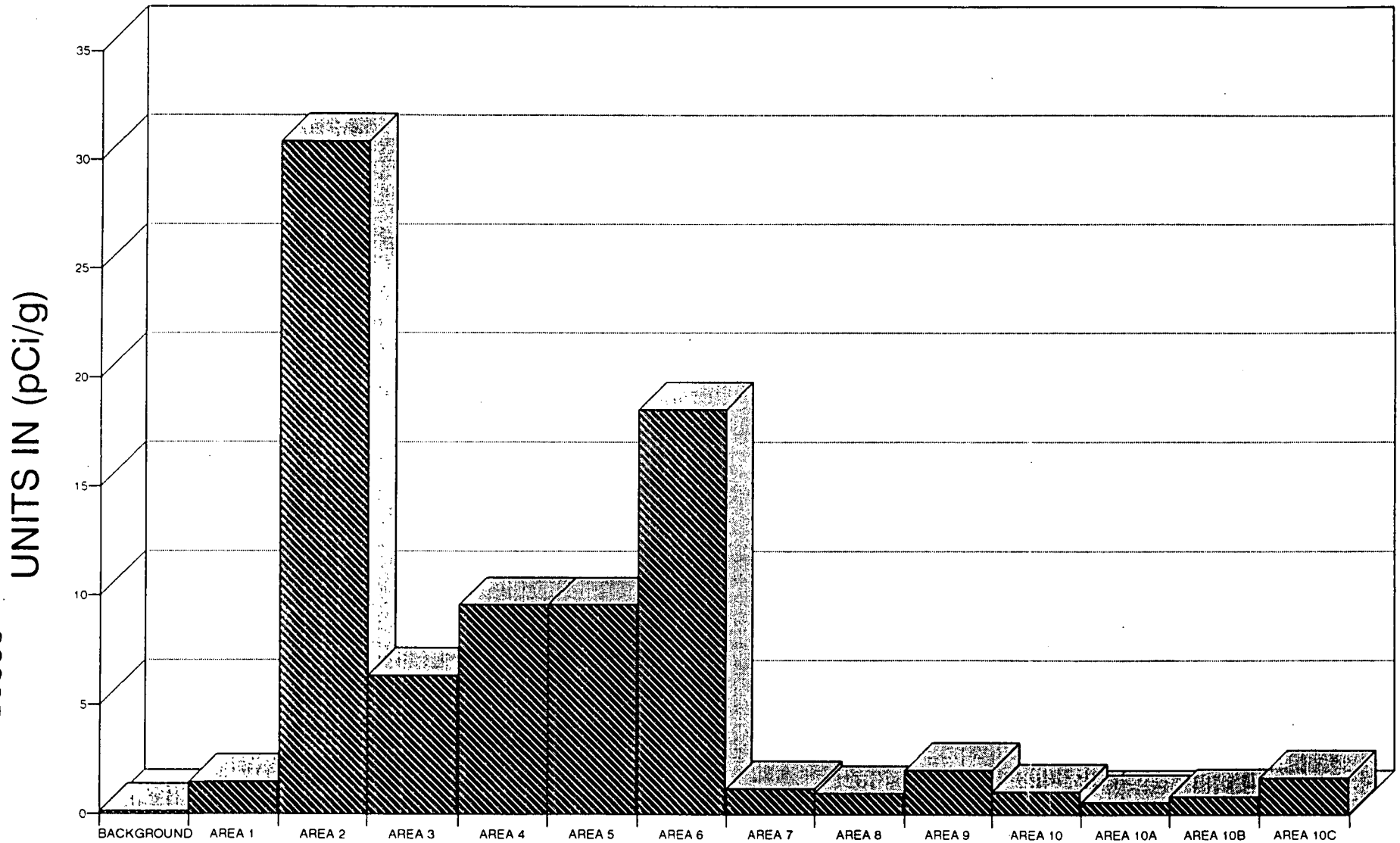
AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



URANIUM 235/236

Figure A.IV-3

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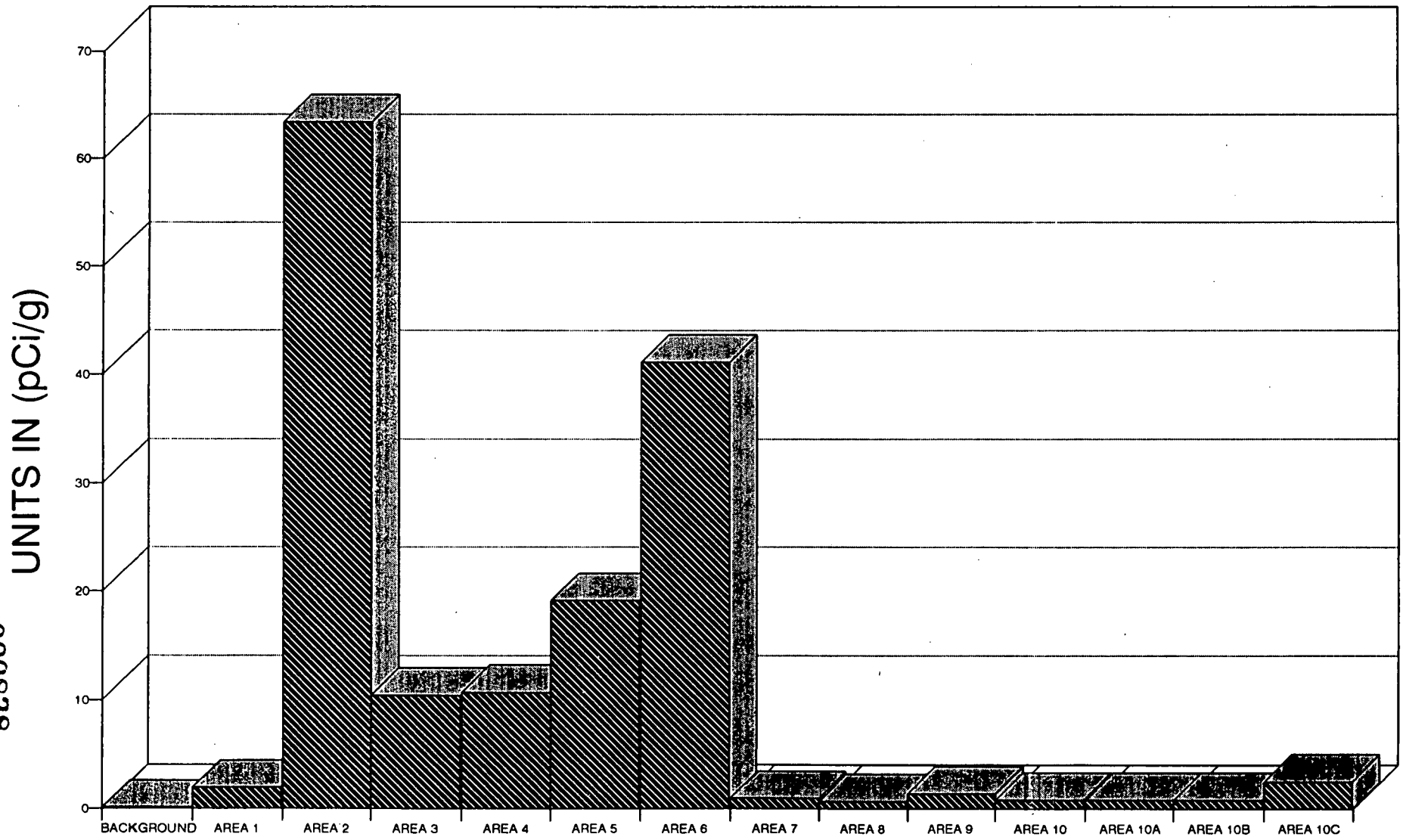
EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



URANIUM 235/236

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Figure A.IV-4

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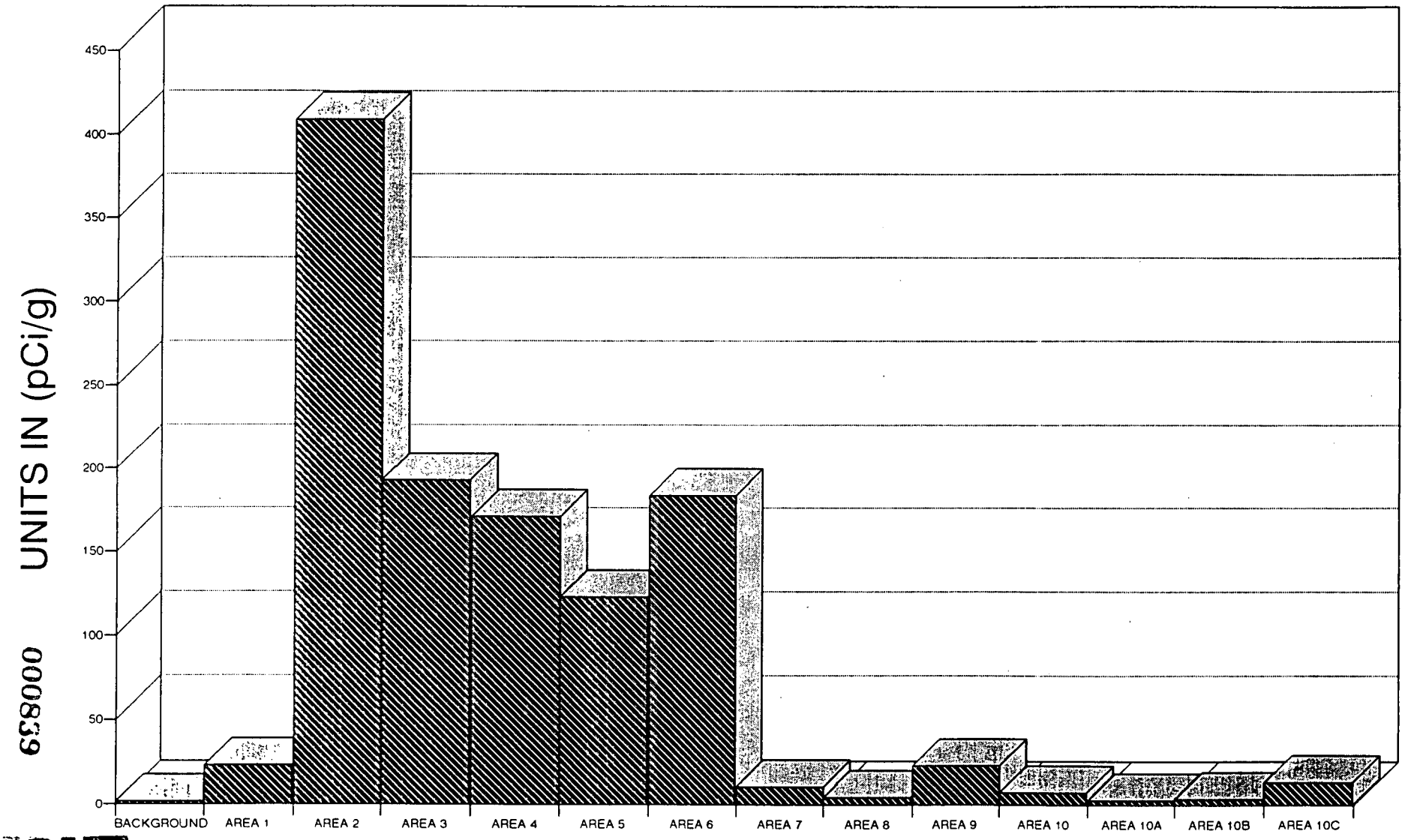
AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



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URANIUM 238

Figure A.IV-5

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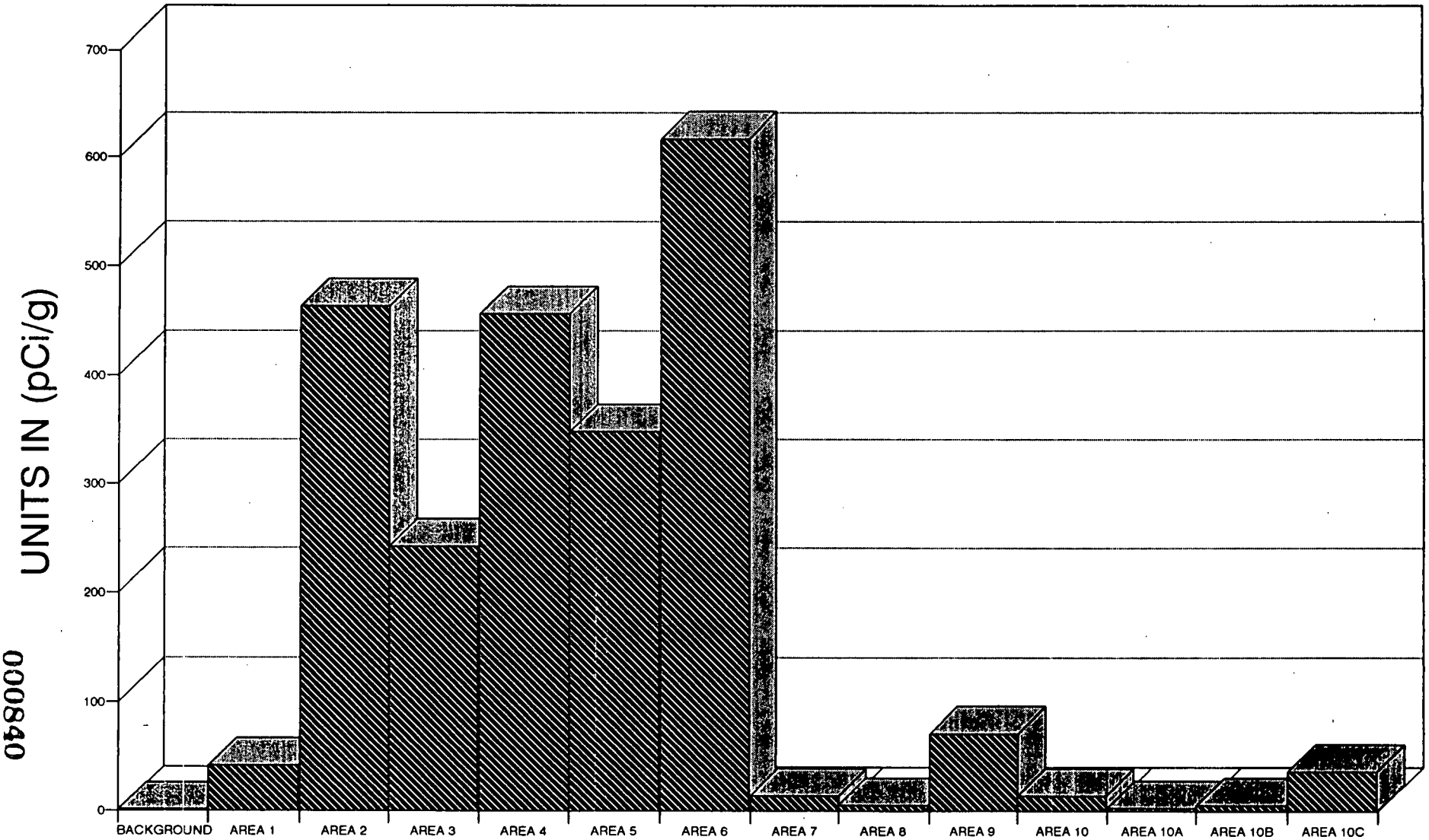
EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



URANIUM 238

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Figure A.IV-6

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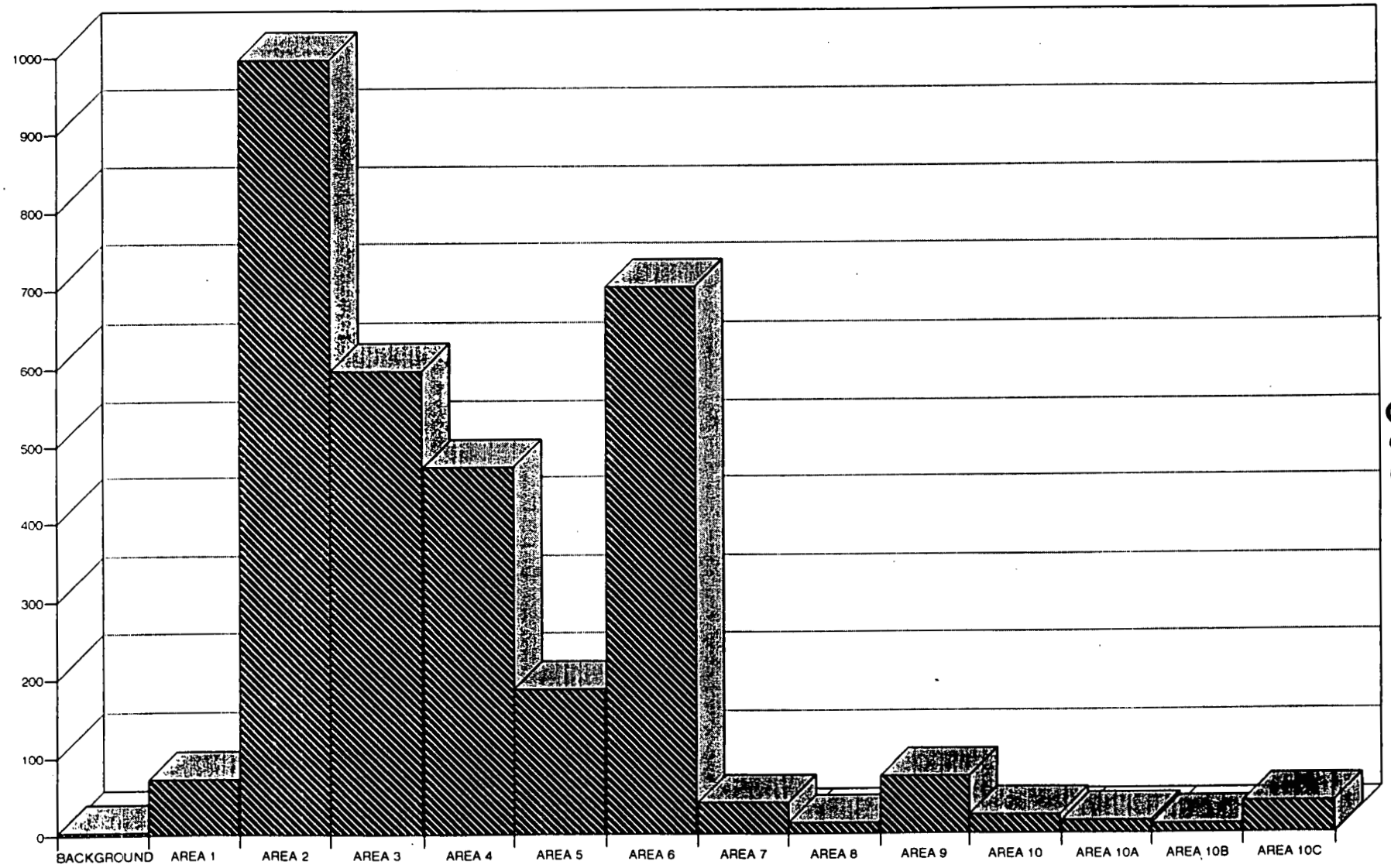
AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



TOTAL URANIUM

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Figure A.IV-7

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2697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL

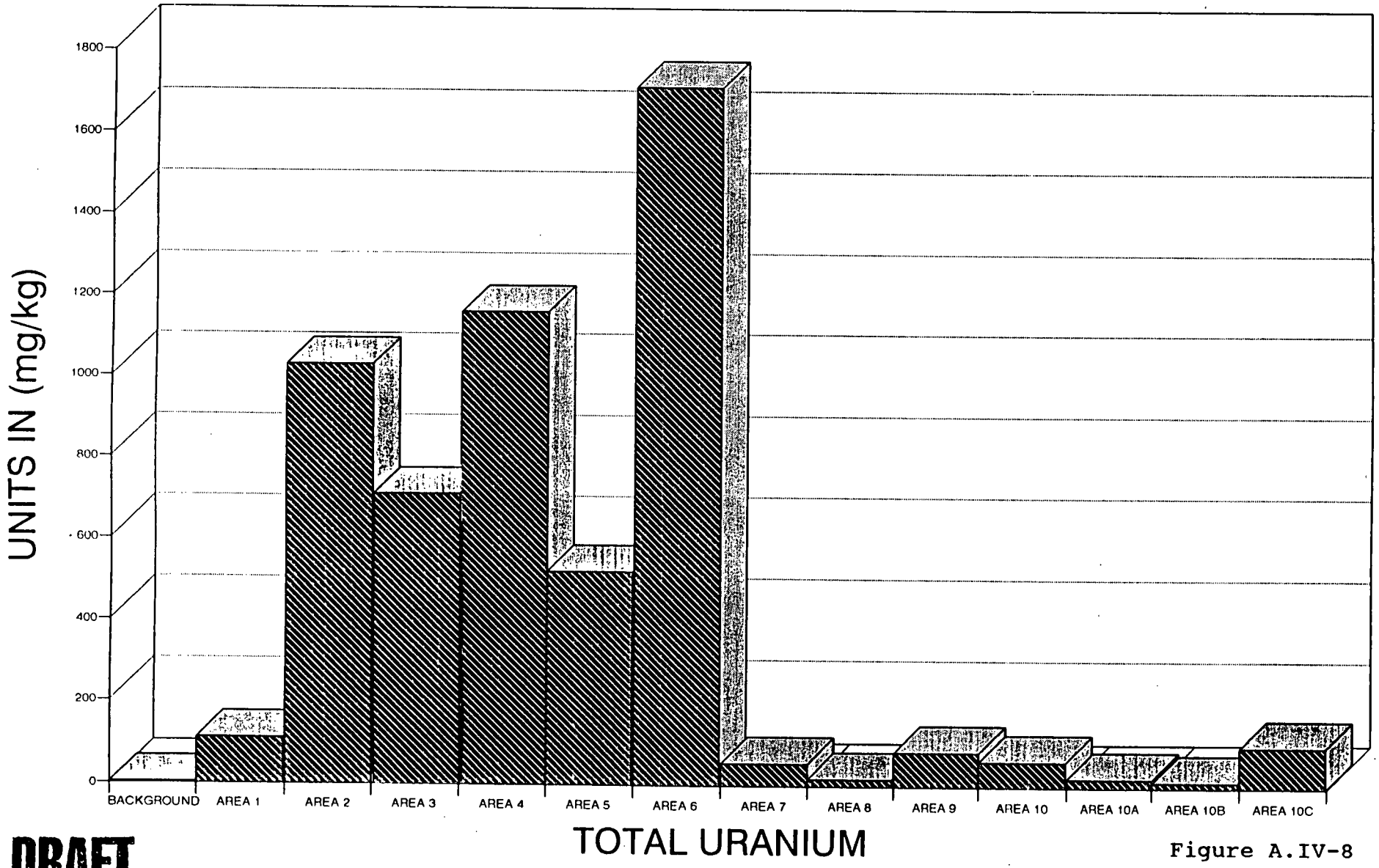

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Figure A.IV-8

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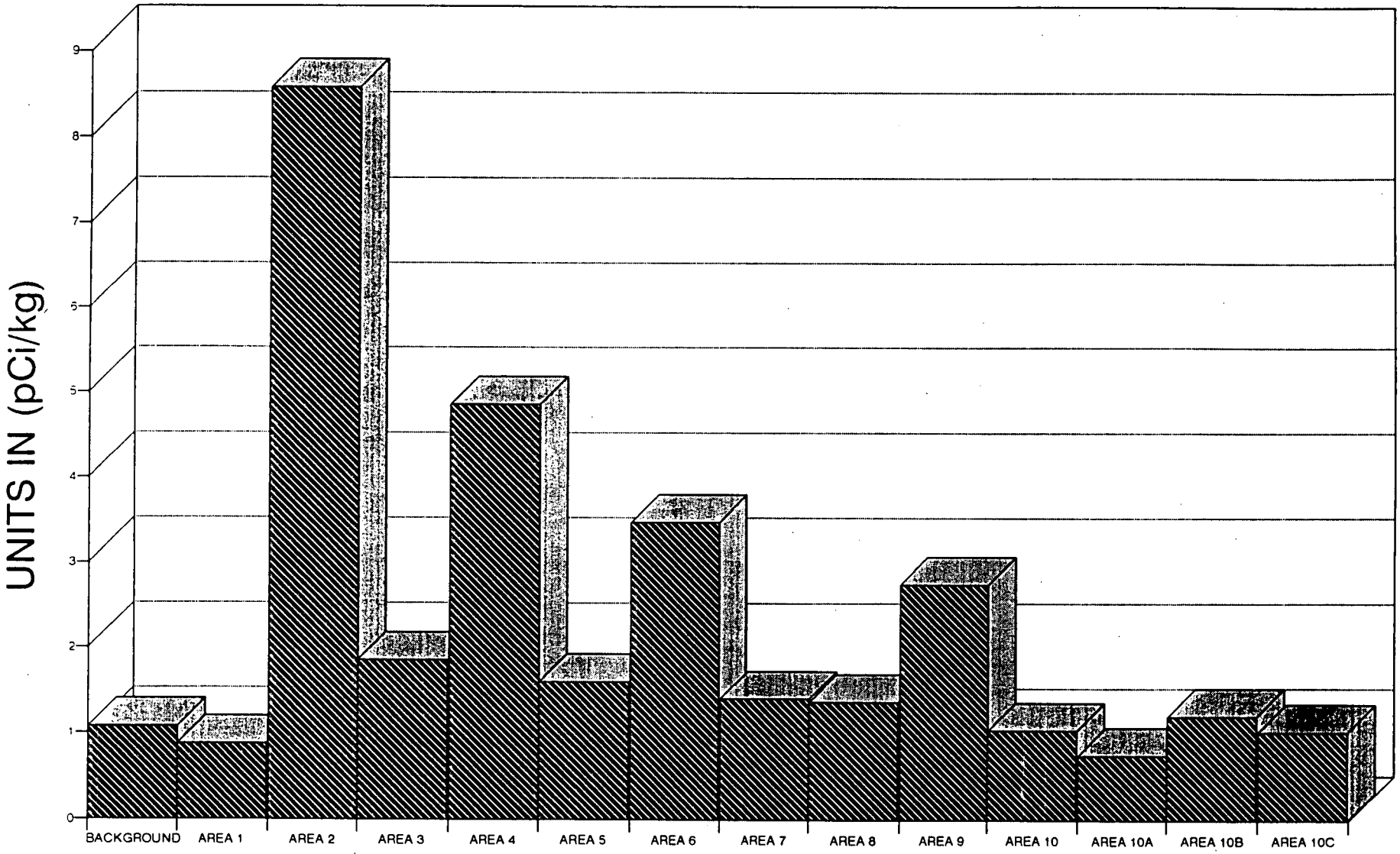
6697

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



THORIUM 228

Figure A.IV-9

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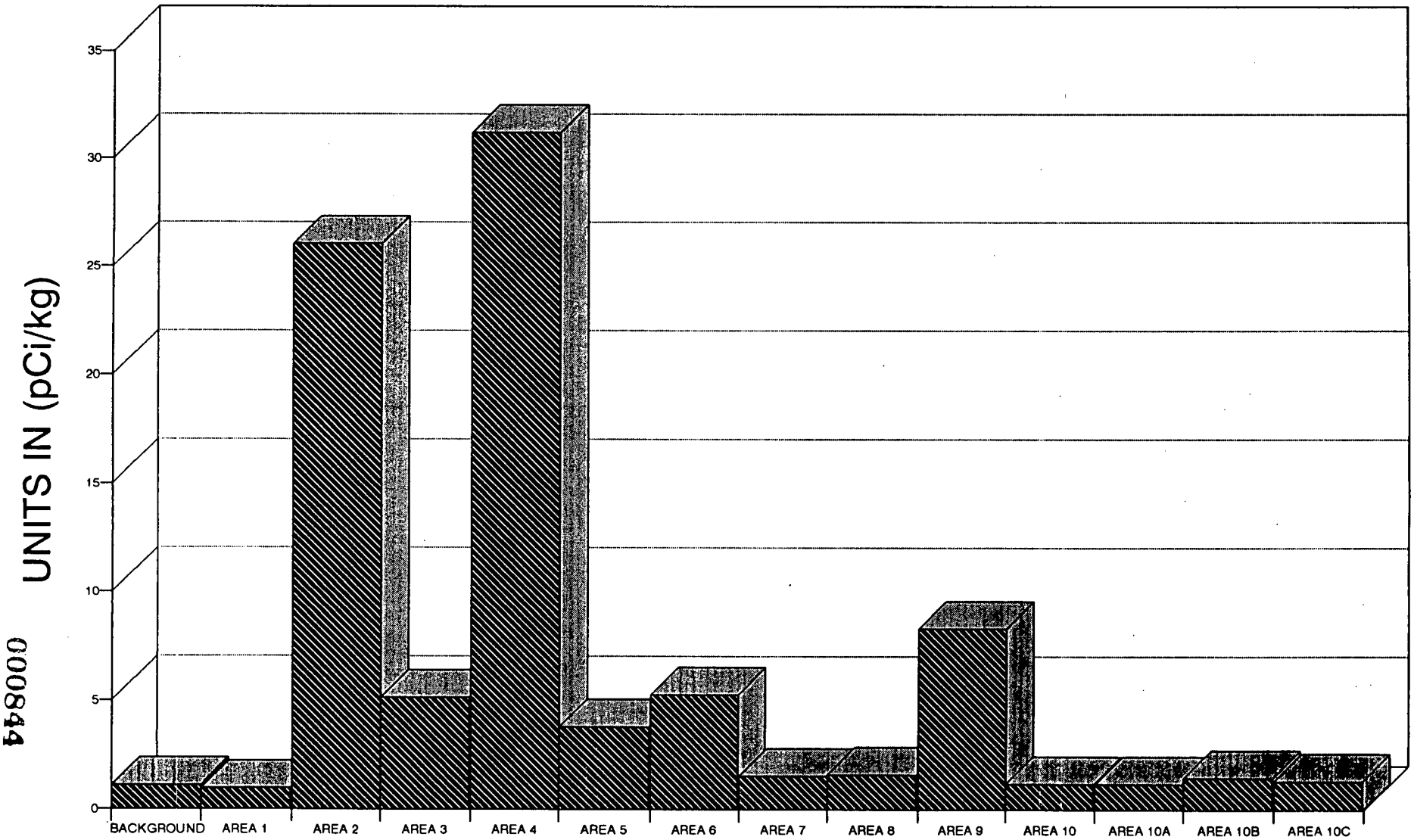
000843

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



THORIUM 228

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Figure A.IV-10

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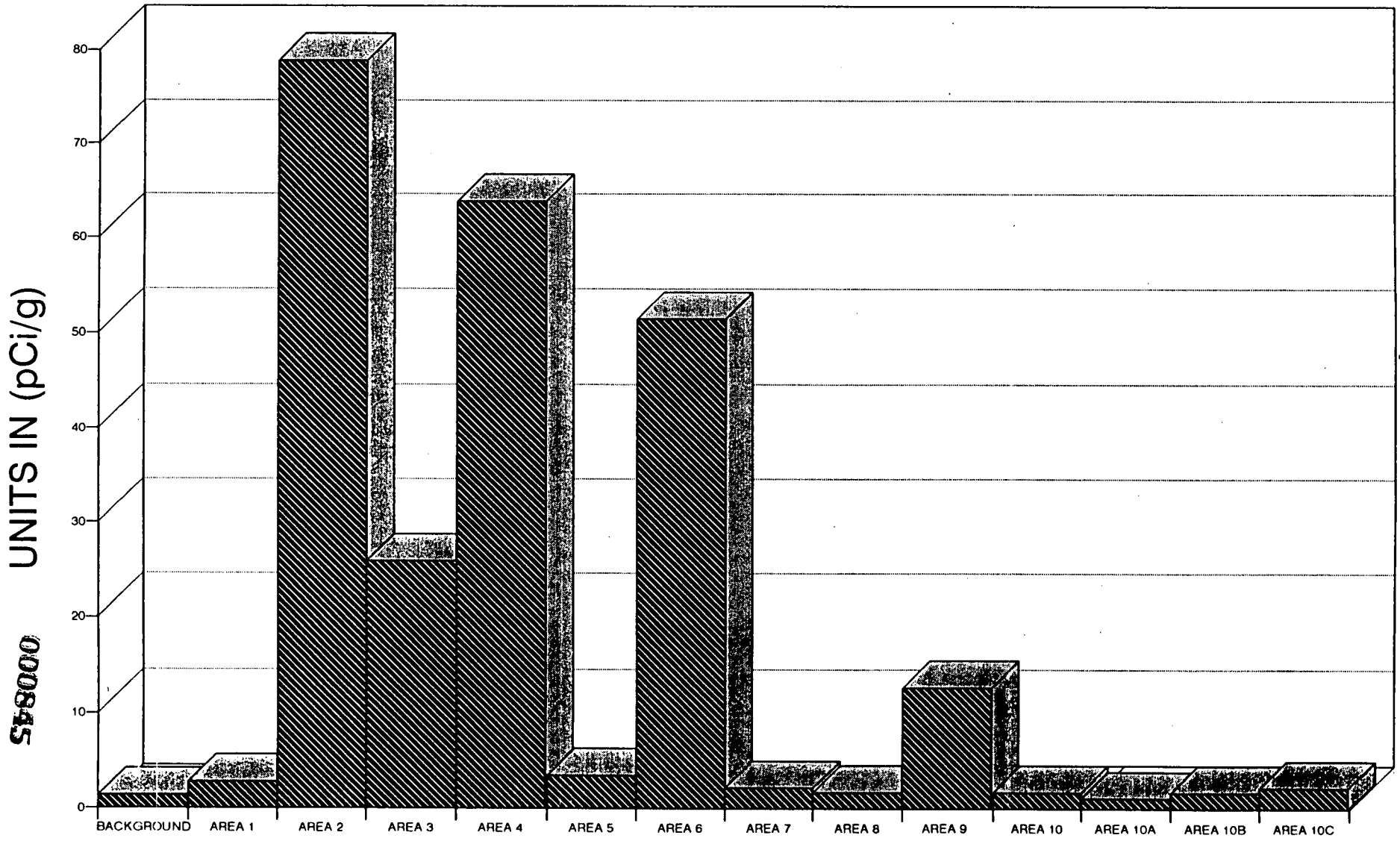
AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



THORIUM 230

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Figure A.IV-11

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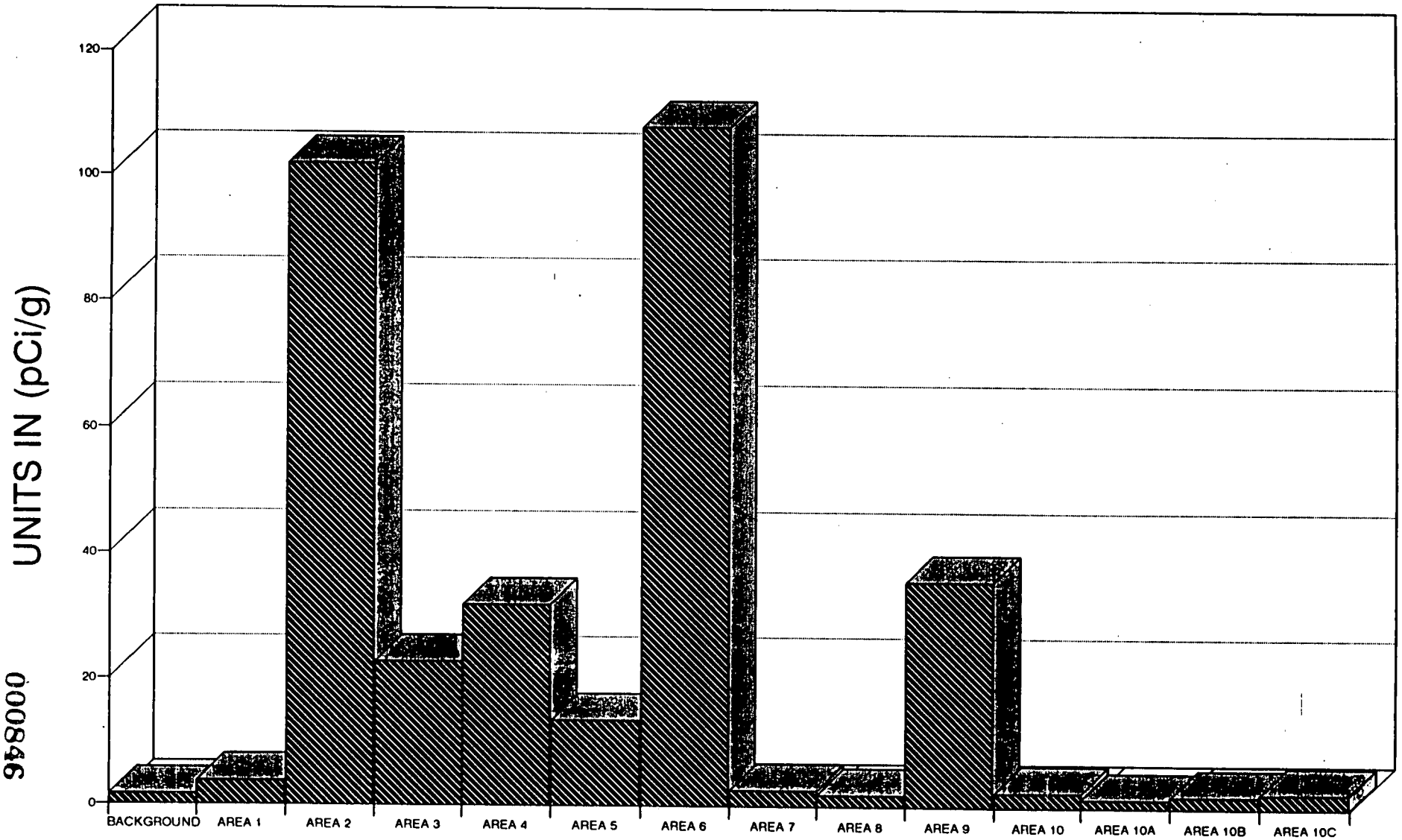
EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



THORIUM 230

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Figure A.IV-12

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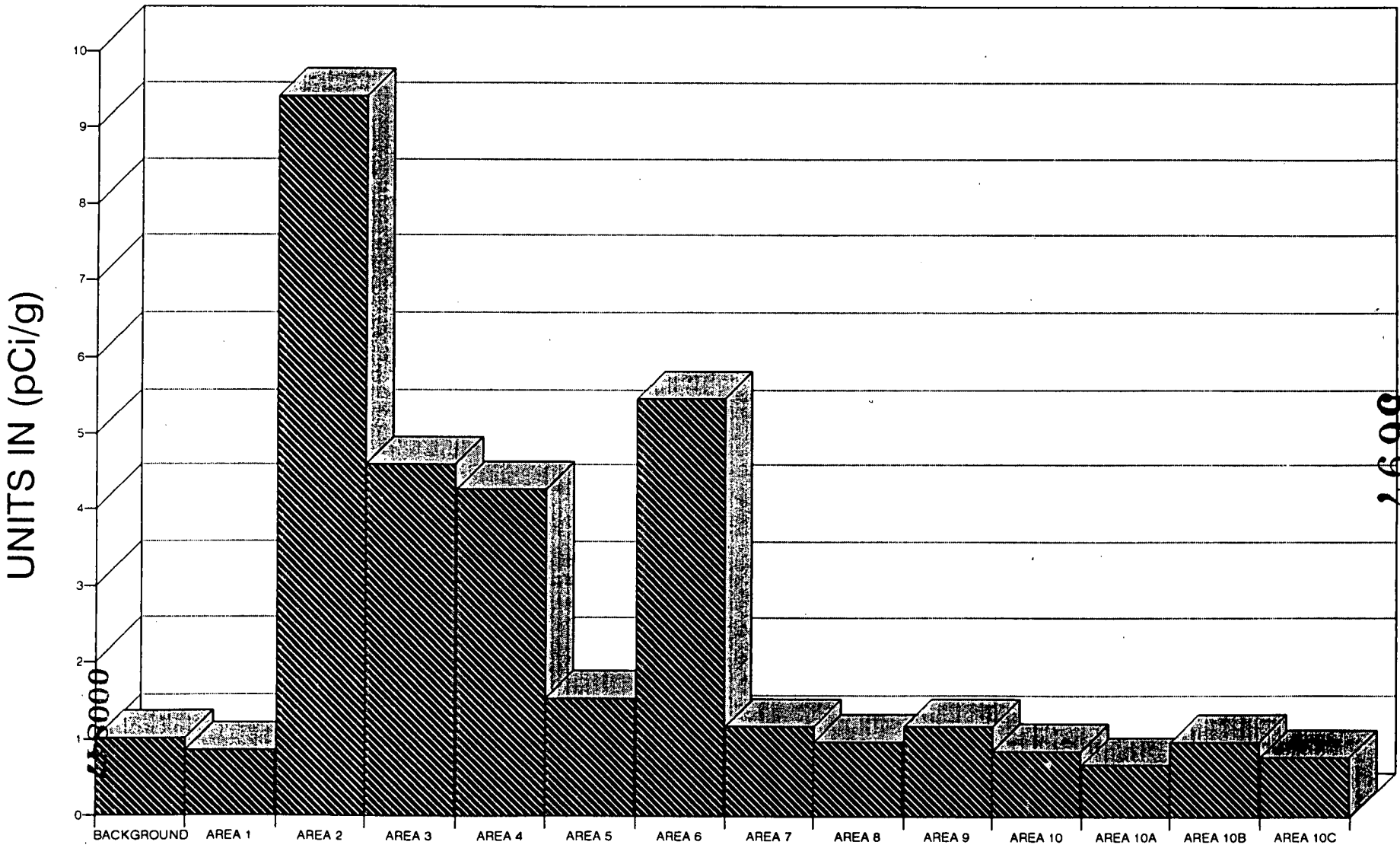
AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



THORIUM 232

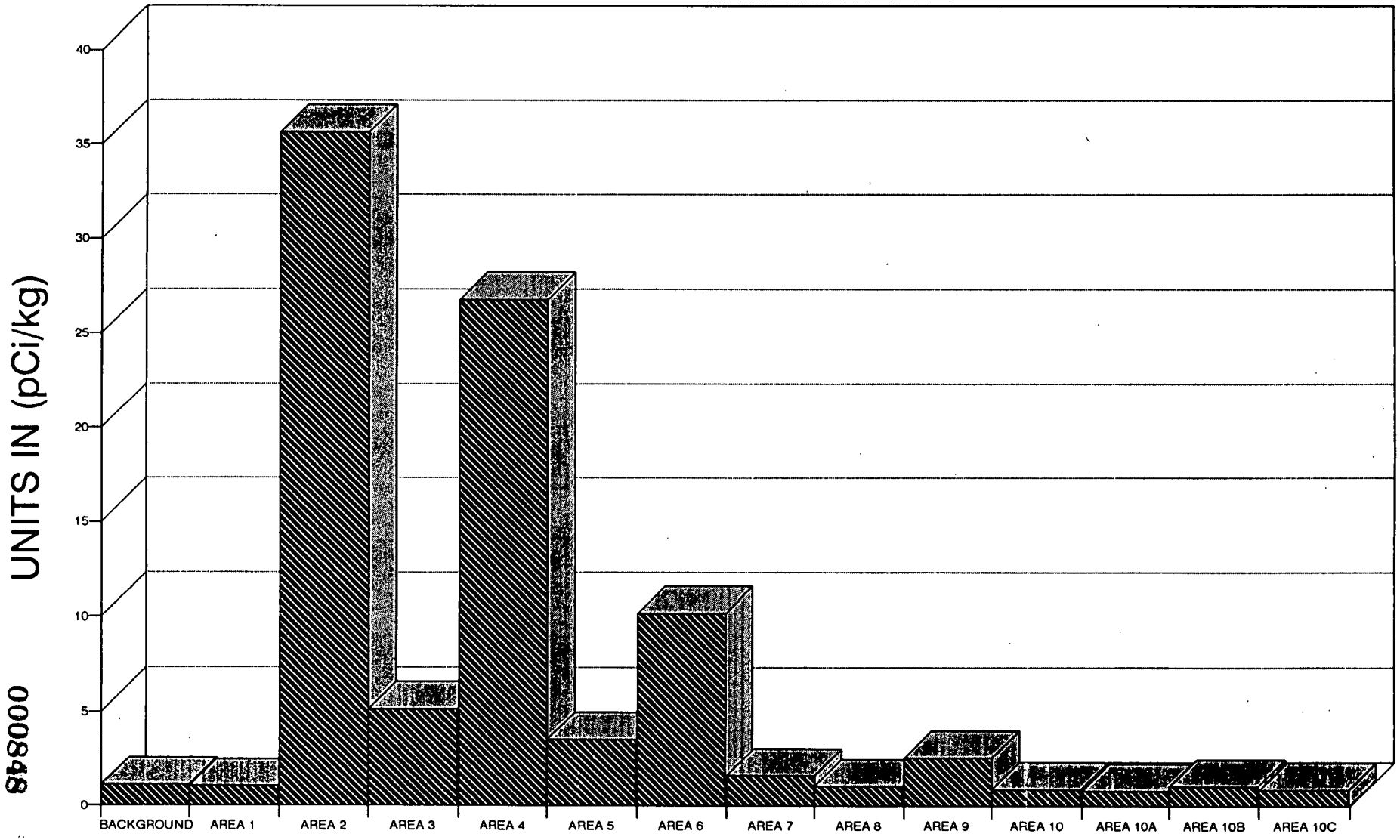
DRAFT

Figure A.IV-13

443000

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



THORIUM 232

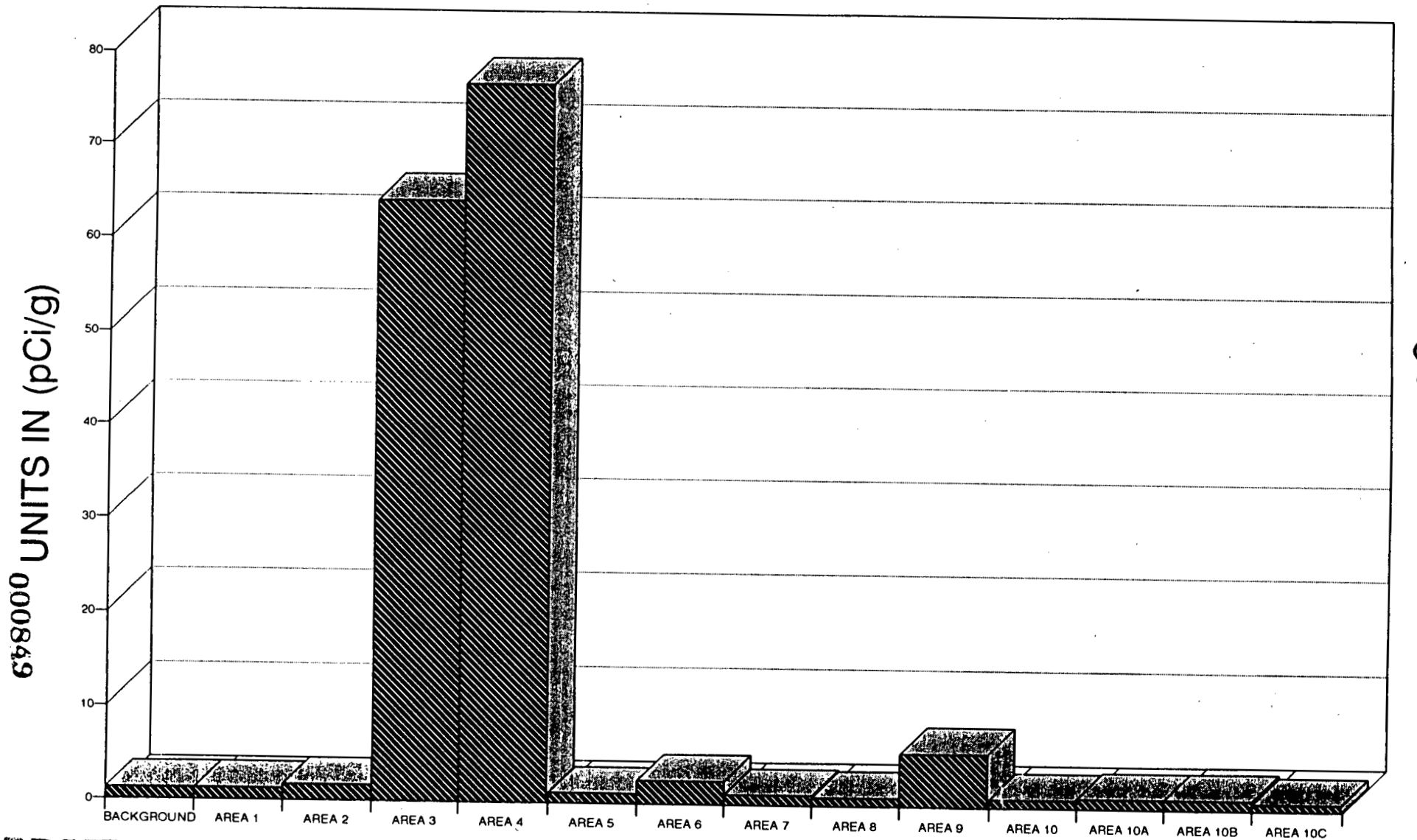
Figure A.IV-14

DRAFT

000848

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



RADIUM 226

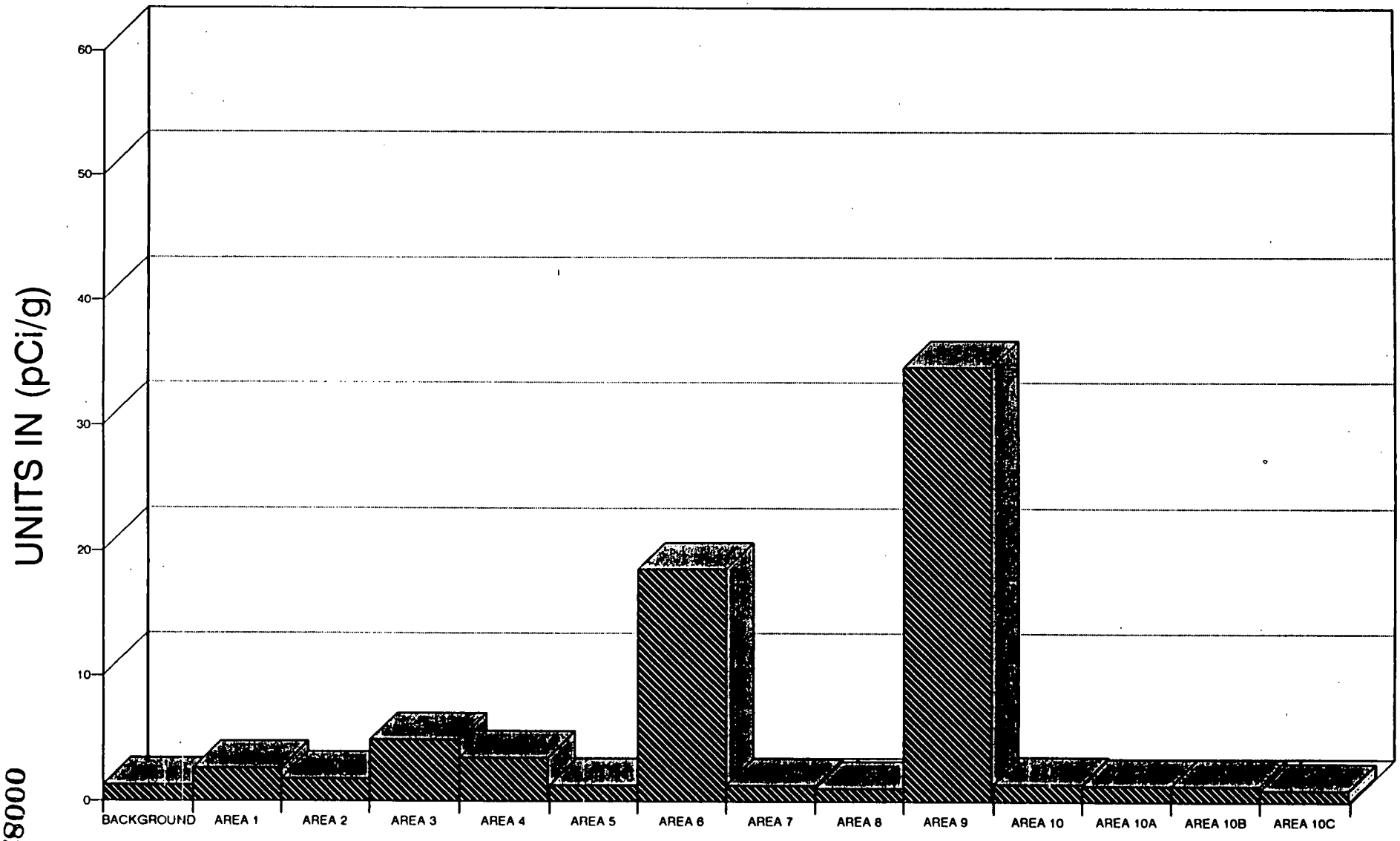
DRAFT

Figure A.IV-15

000849

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



RADIUM 226

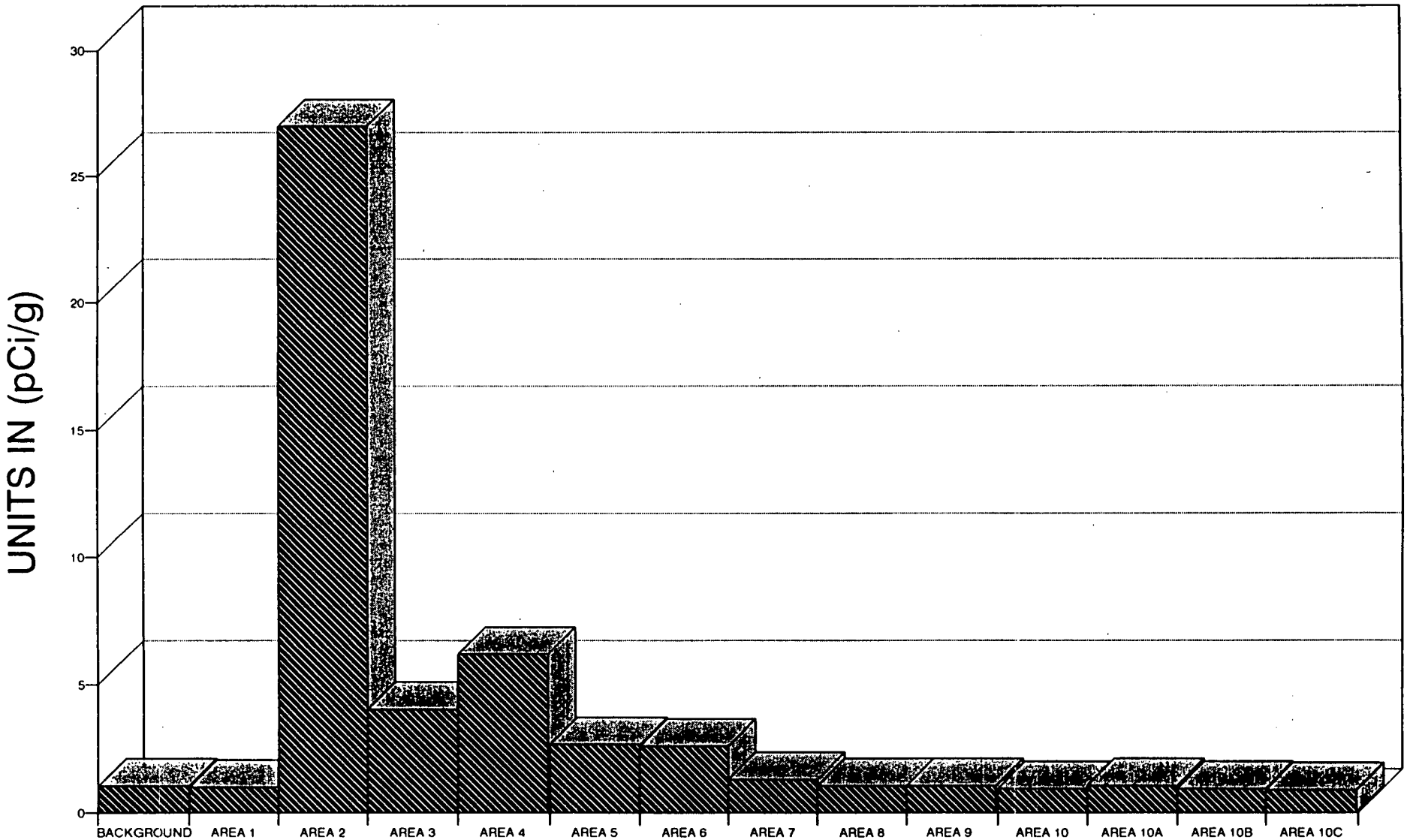
Figure A.IV-16

DRAFT

000850

566697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



RADIUM 228

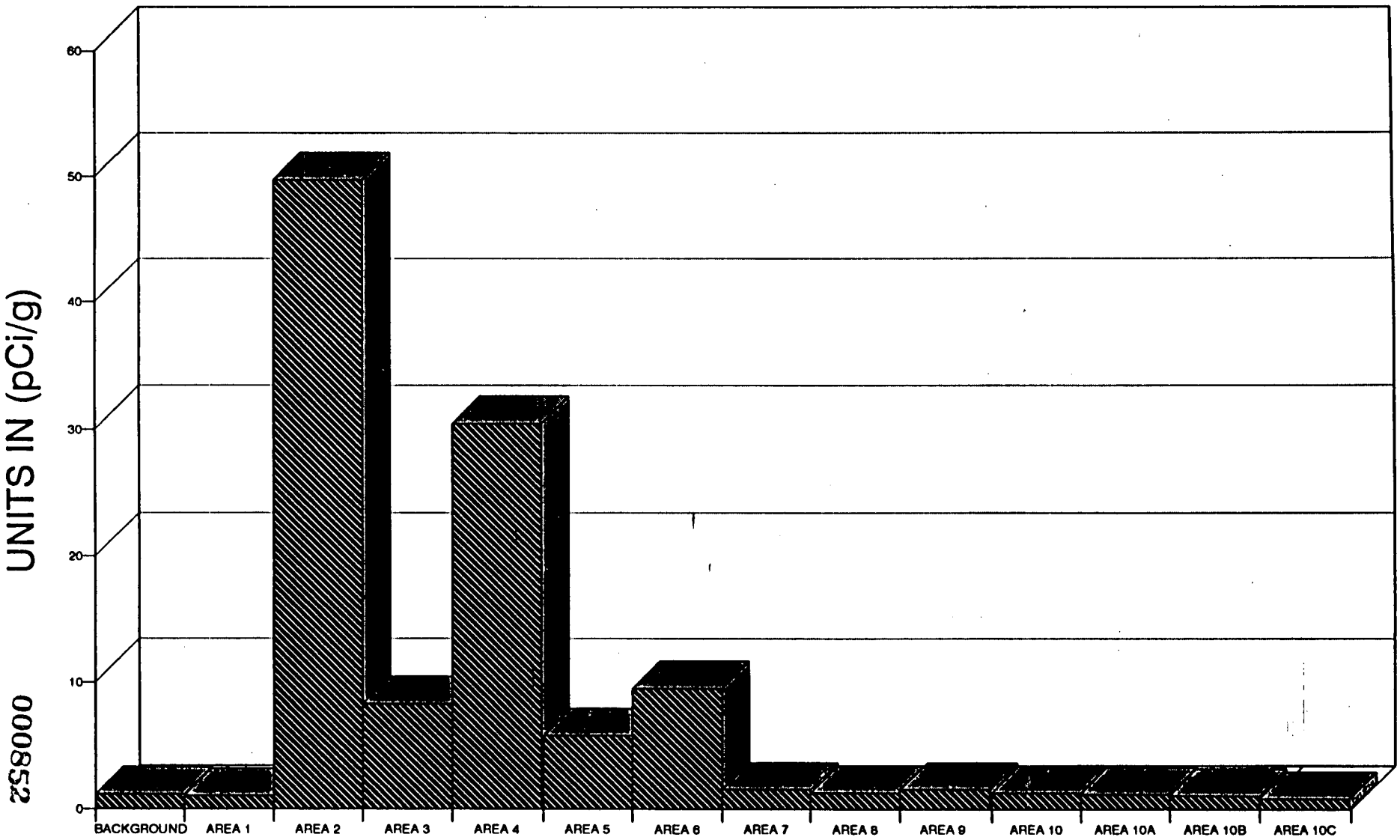
Figure A.IV-17

DRAFT

000851

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



RADIUM 228

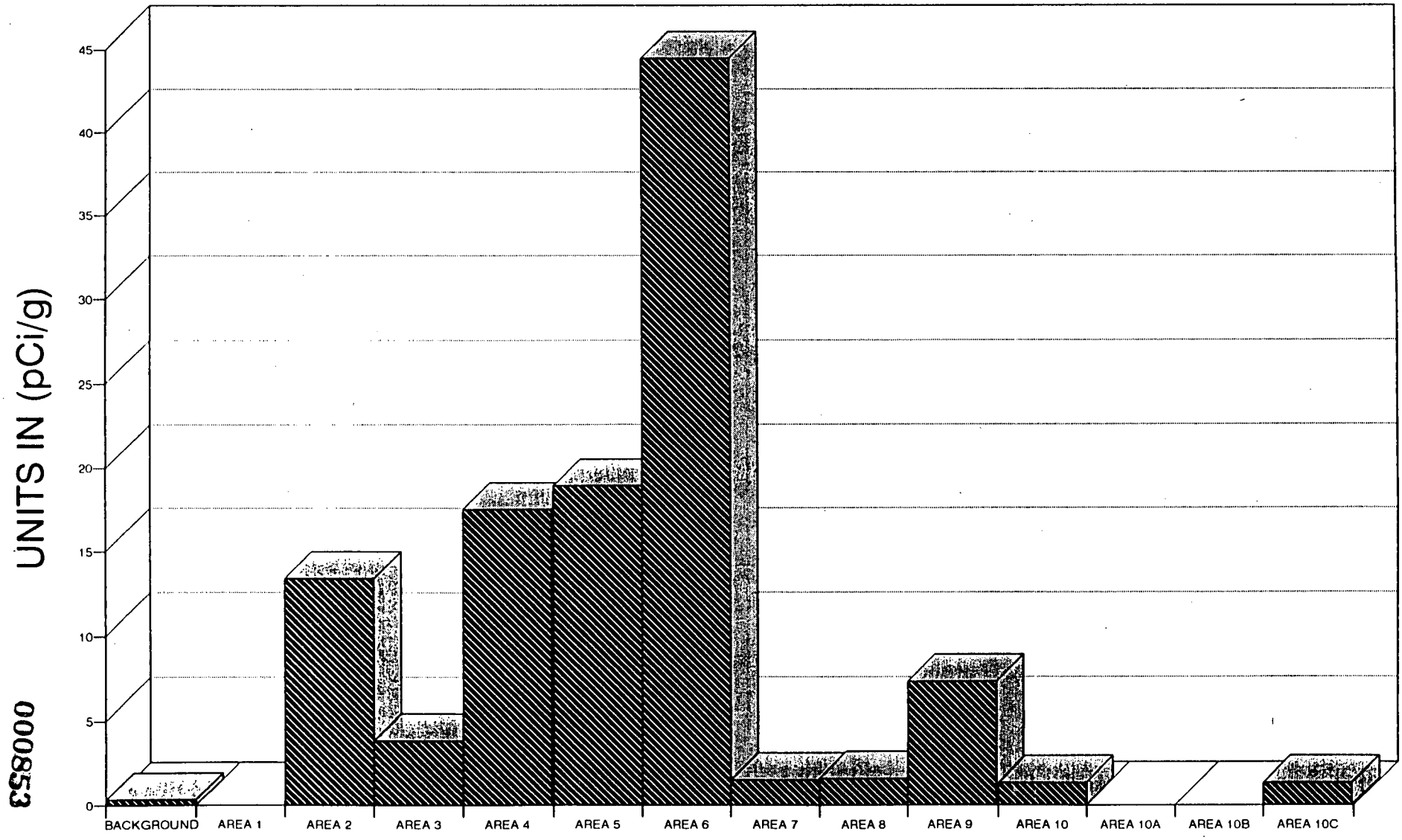
DRAFT

Figure A.IV-18

000852

6697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



TECHNETIUM 99

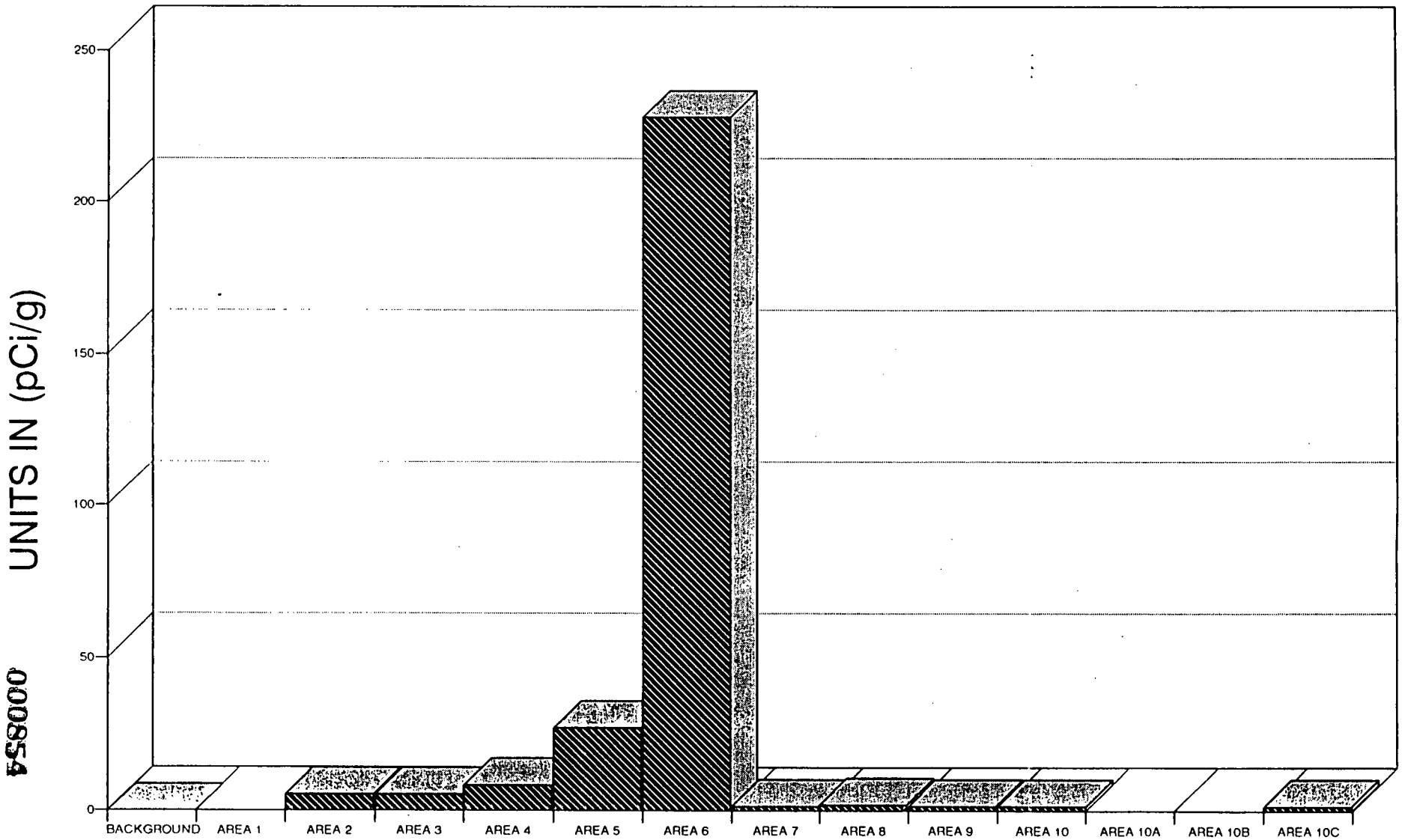
DRAFT

Figure A.IV-19

000853

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



TECHNETIUM 99

DRAFT

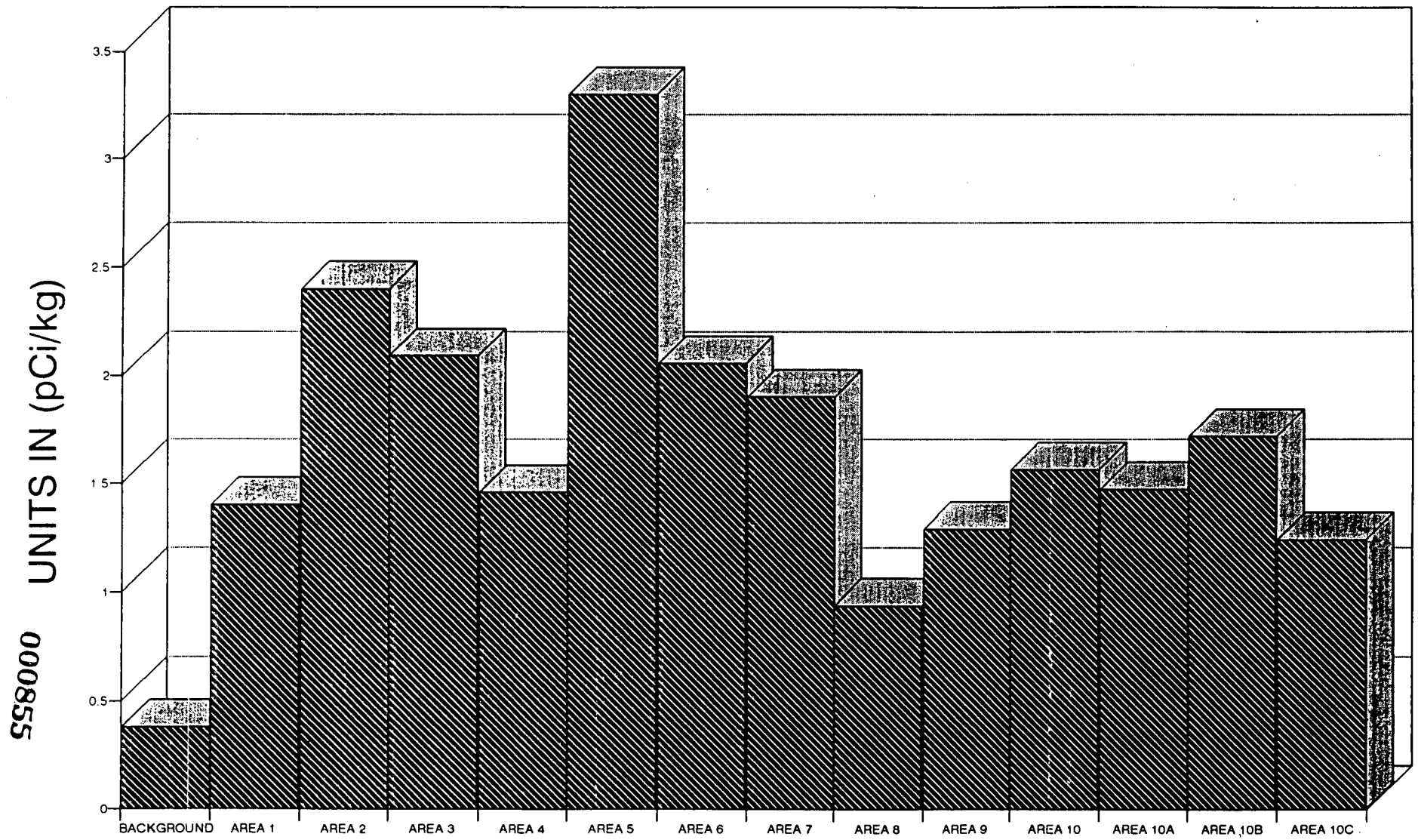
Figure A.IV-20

000854

5697

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



STRONTIUM 90

Figure A.IV-21

DRAFT

000855

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL

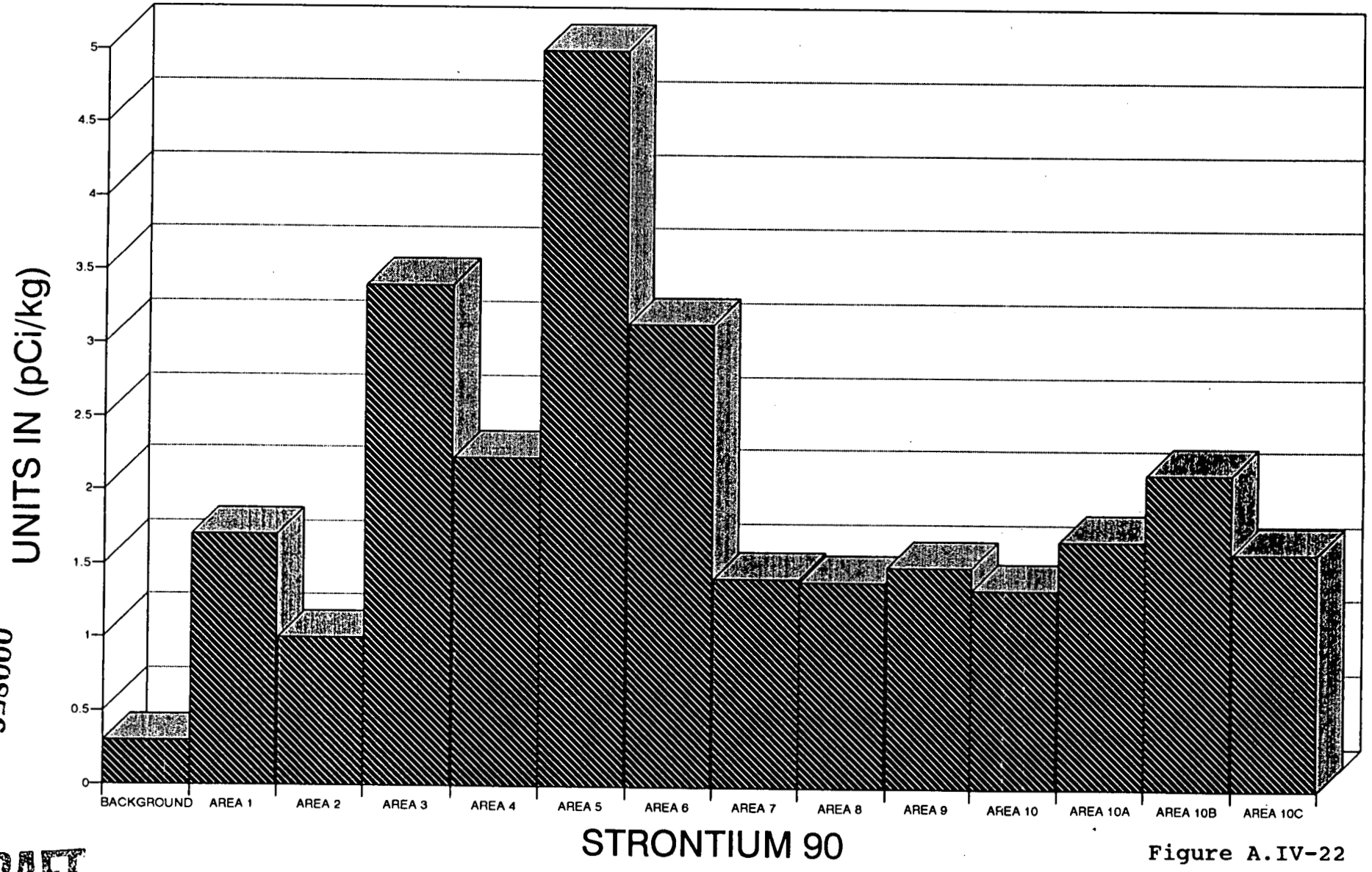


Figure A.IV-22

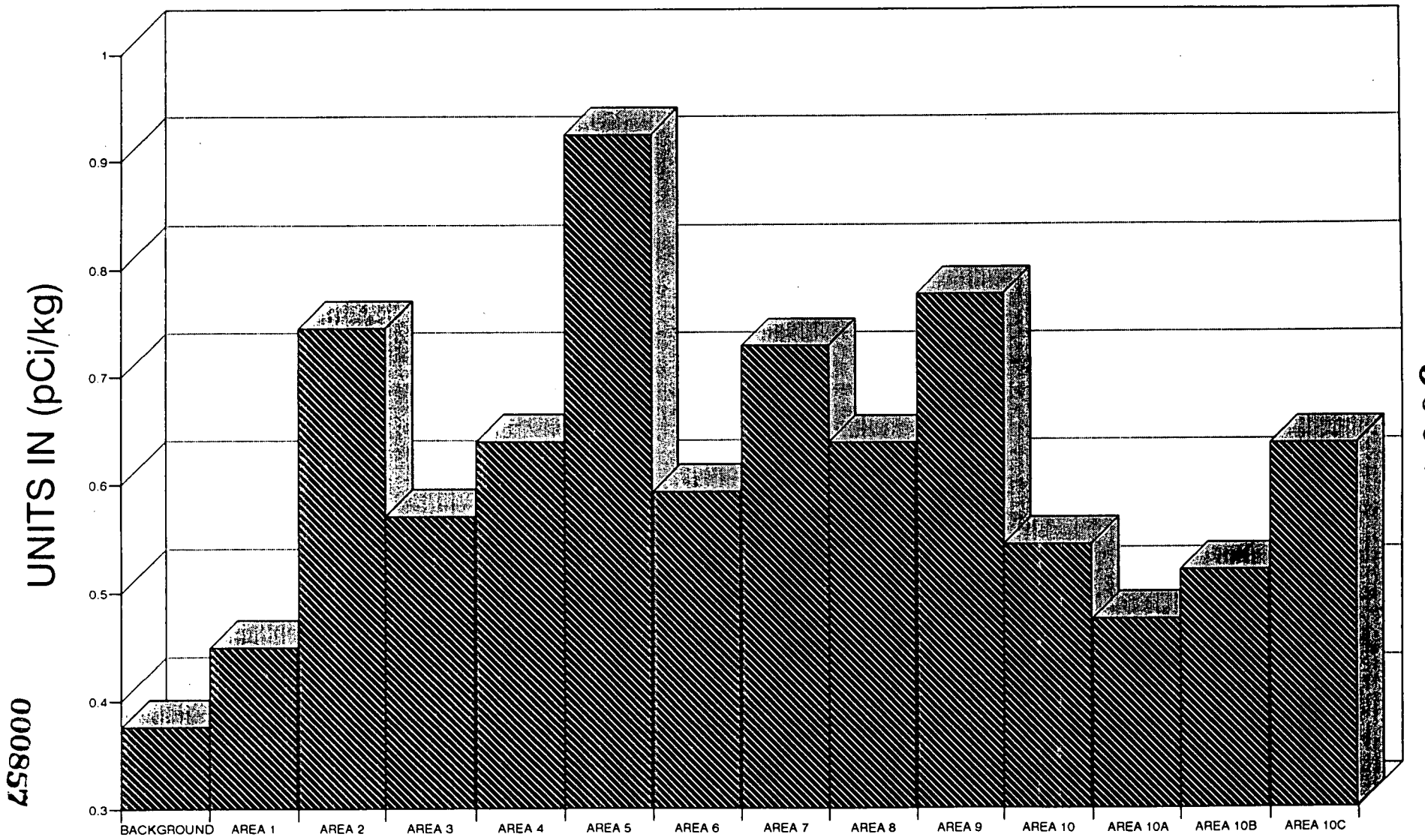
DRAFT

000856

56997

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



CESIUM 137

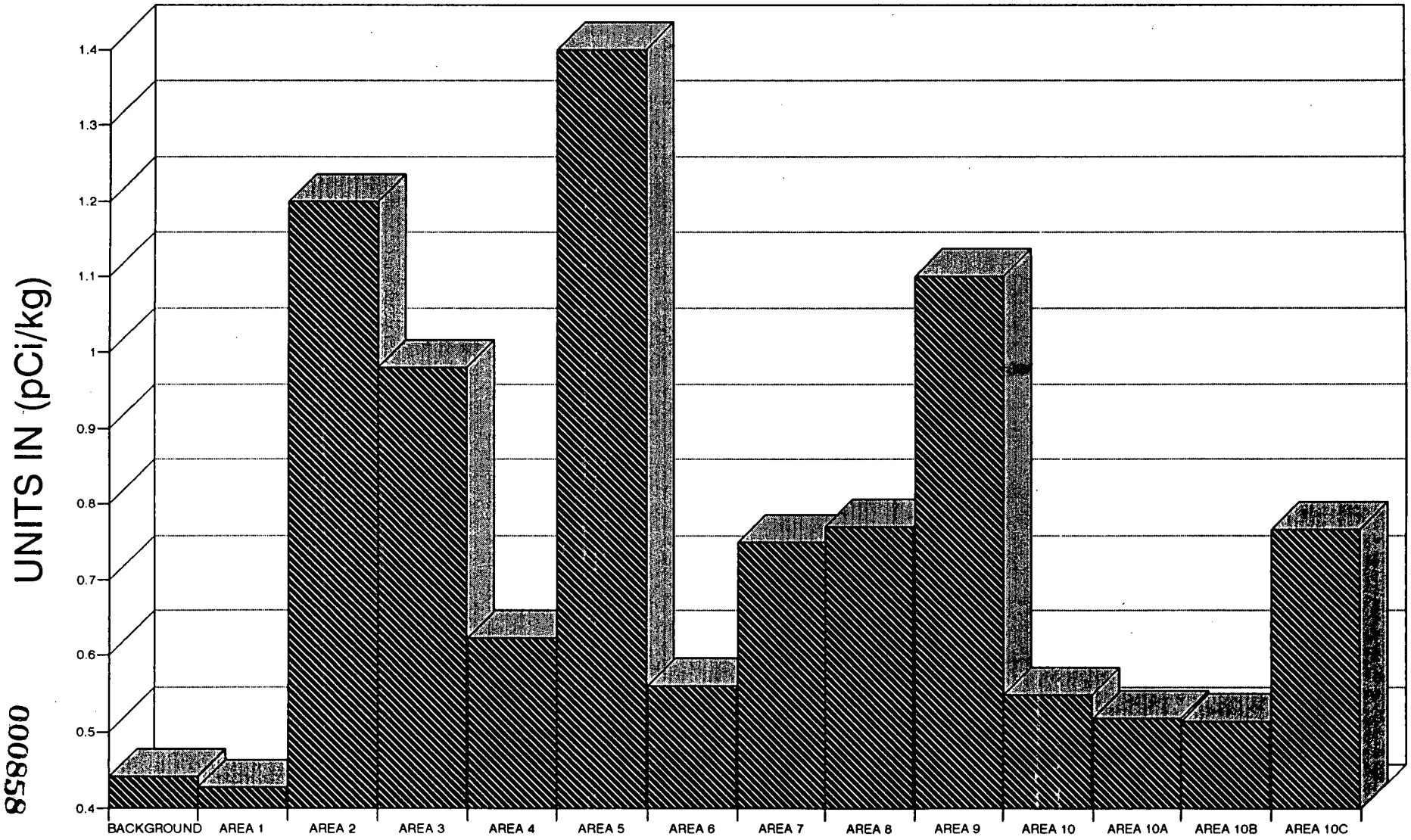
Figure A.IV-23

DRAFT

000857

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



CESIUM 137

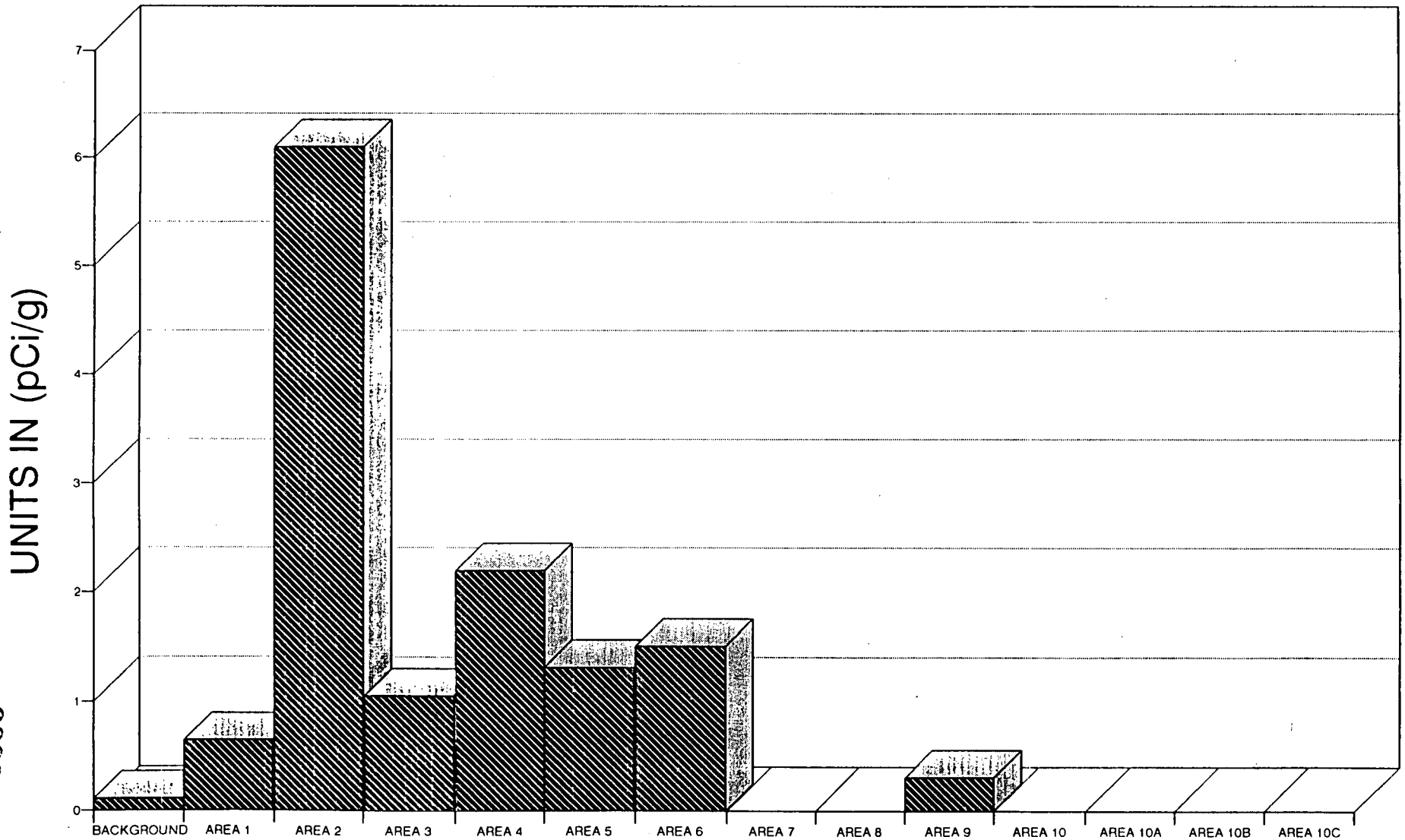
Figure A.IV-24

DRAFT

000858

6697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



PLUTONIUM 238

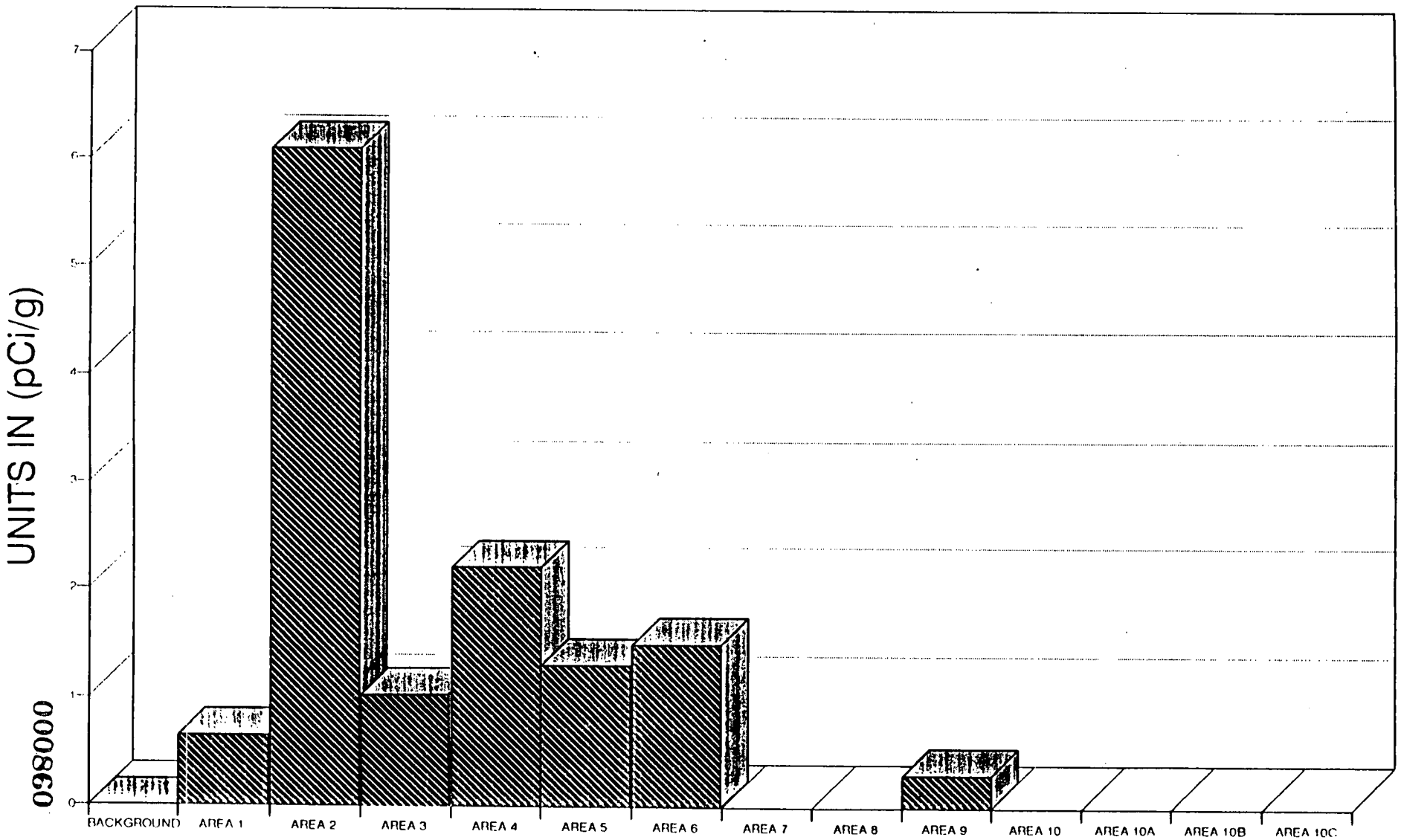
Figure A.IV-25

DRAFT

000859

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



PLUTONIUM 238

DRAFT

Figure A.IV-26

000860

56997

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL

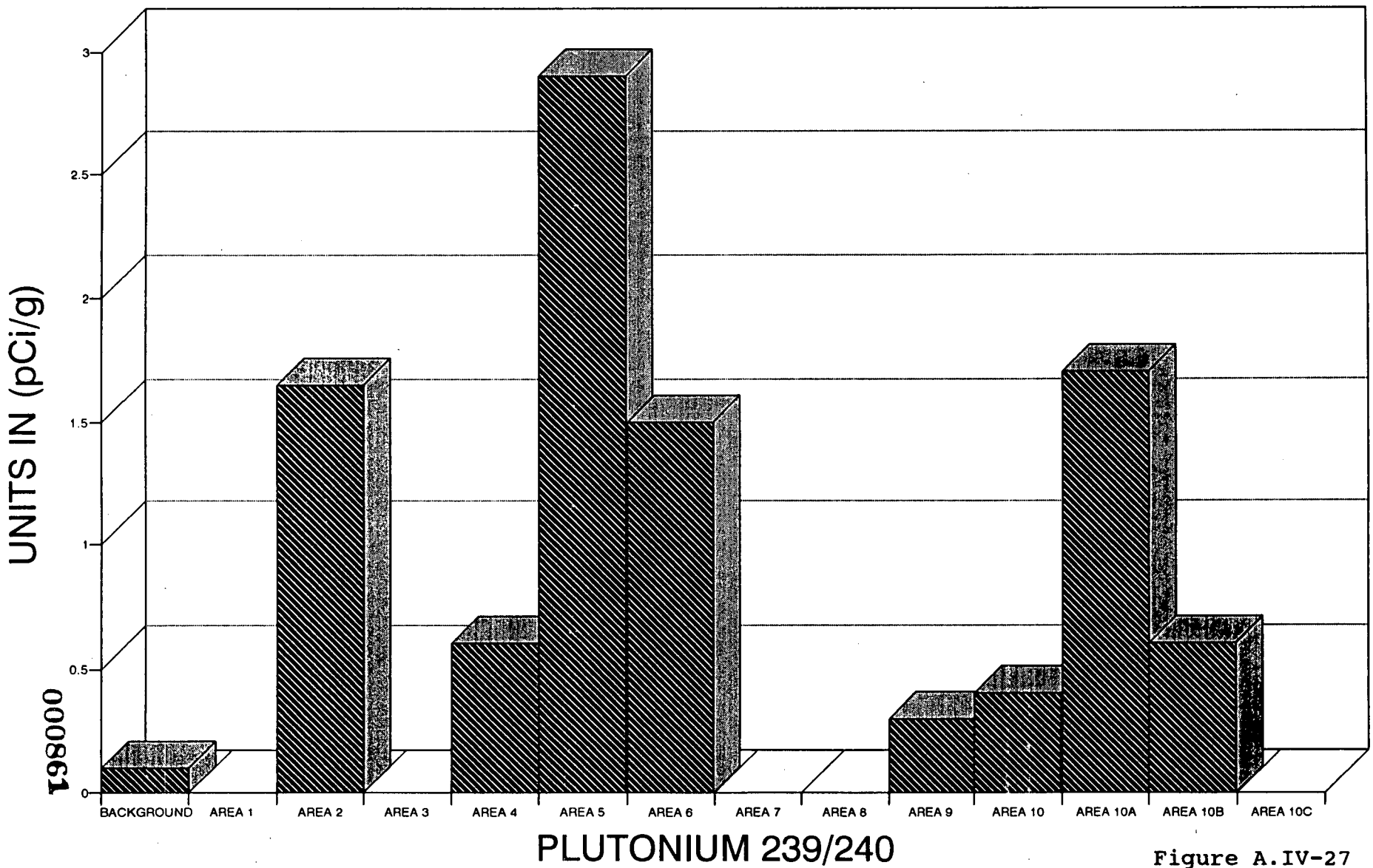


Figure A.IV-27

DRAFT

198000

66997

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL

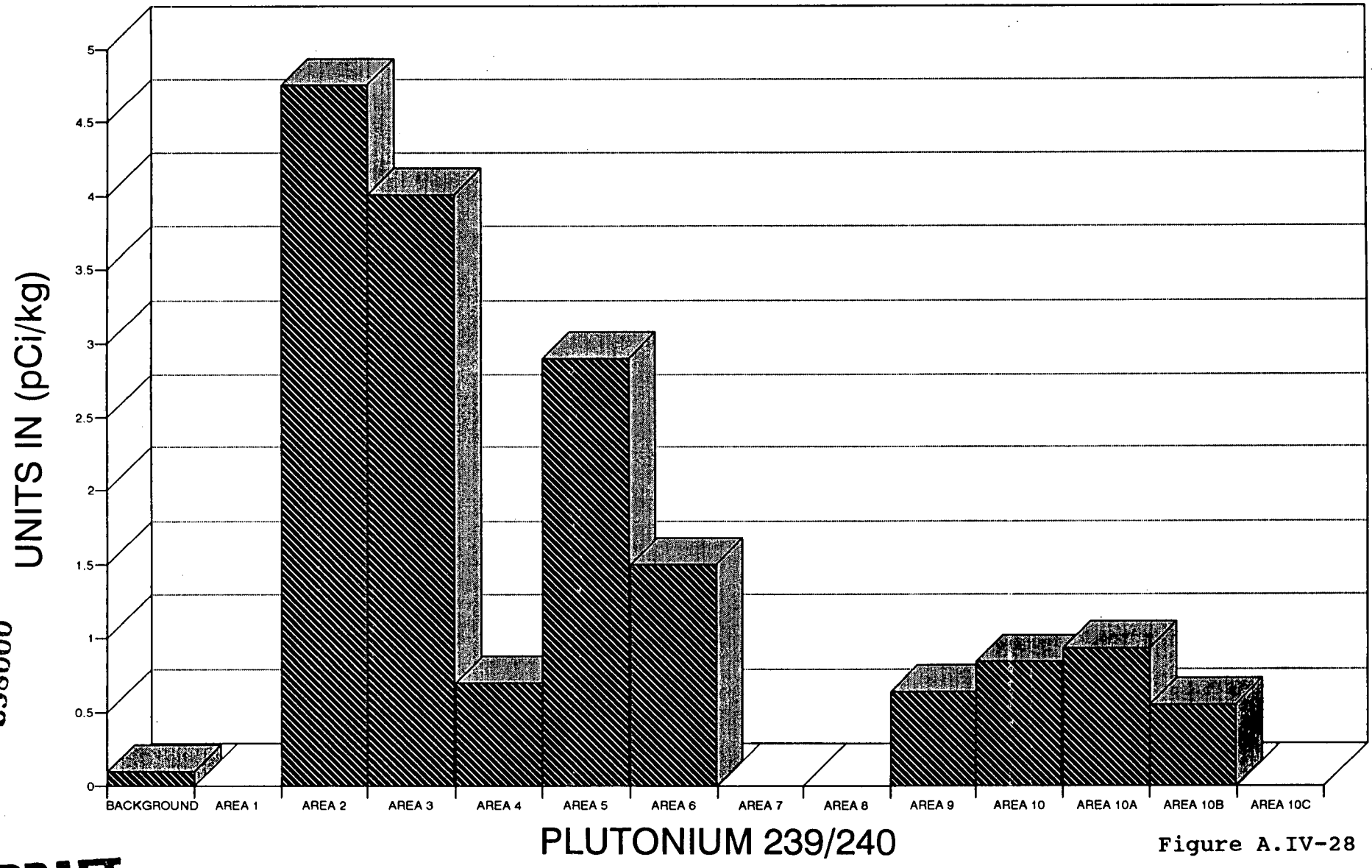


Figure A.IV-28

DRAFT

000862

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL

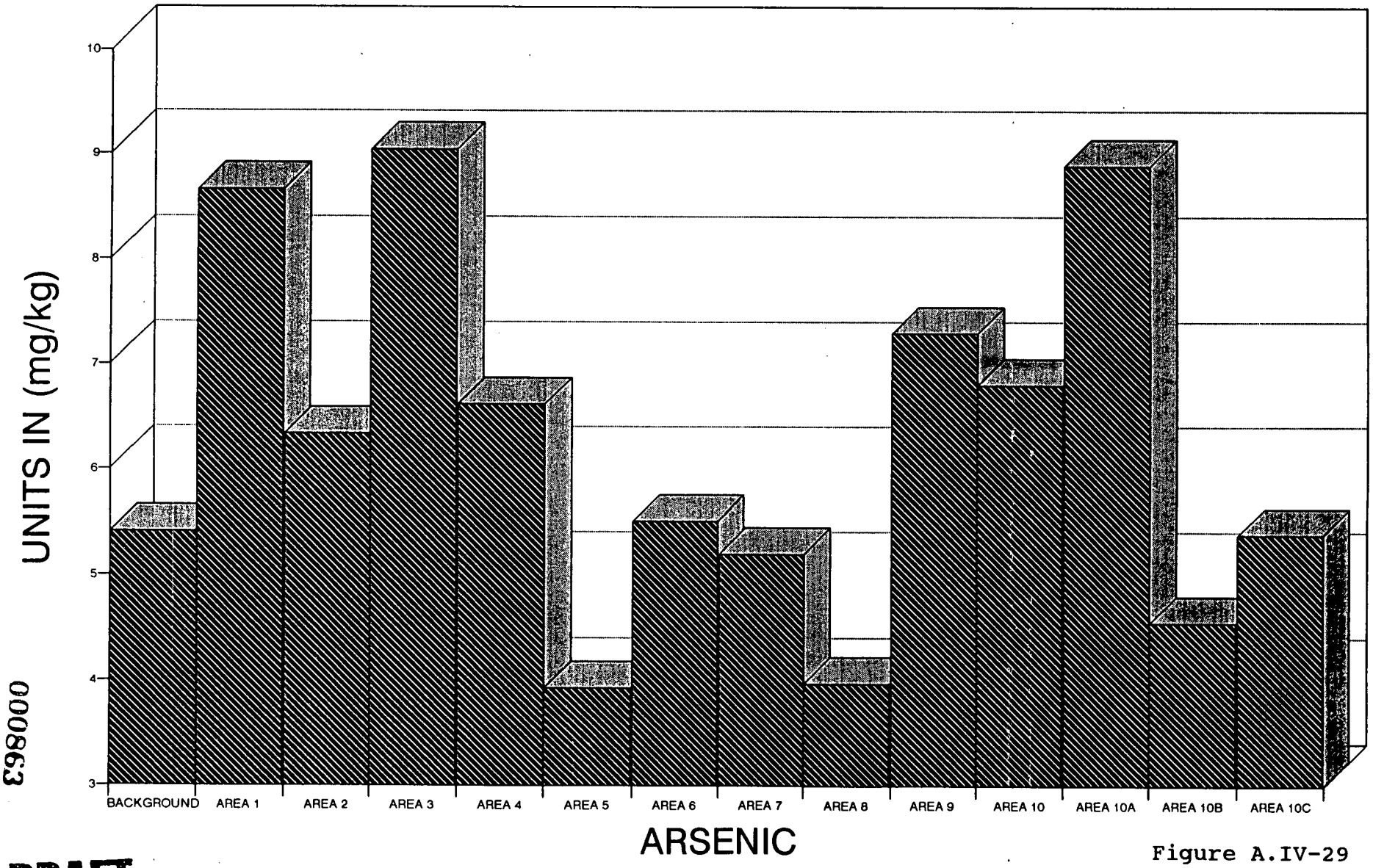


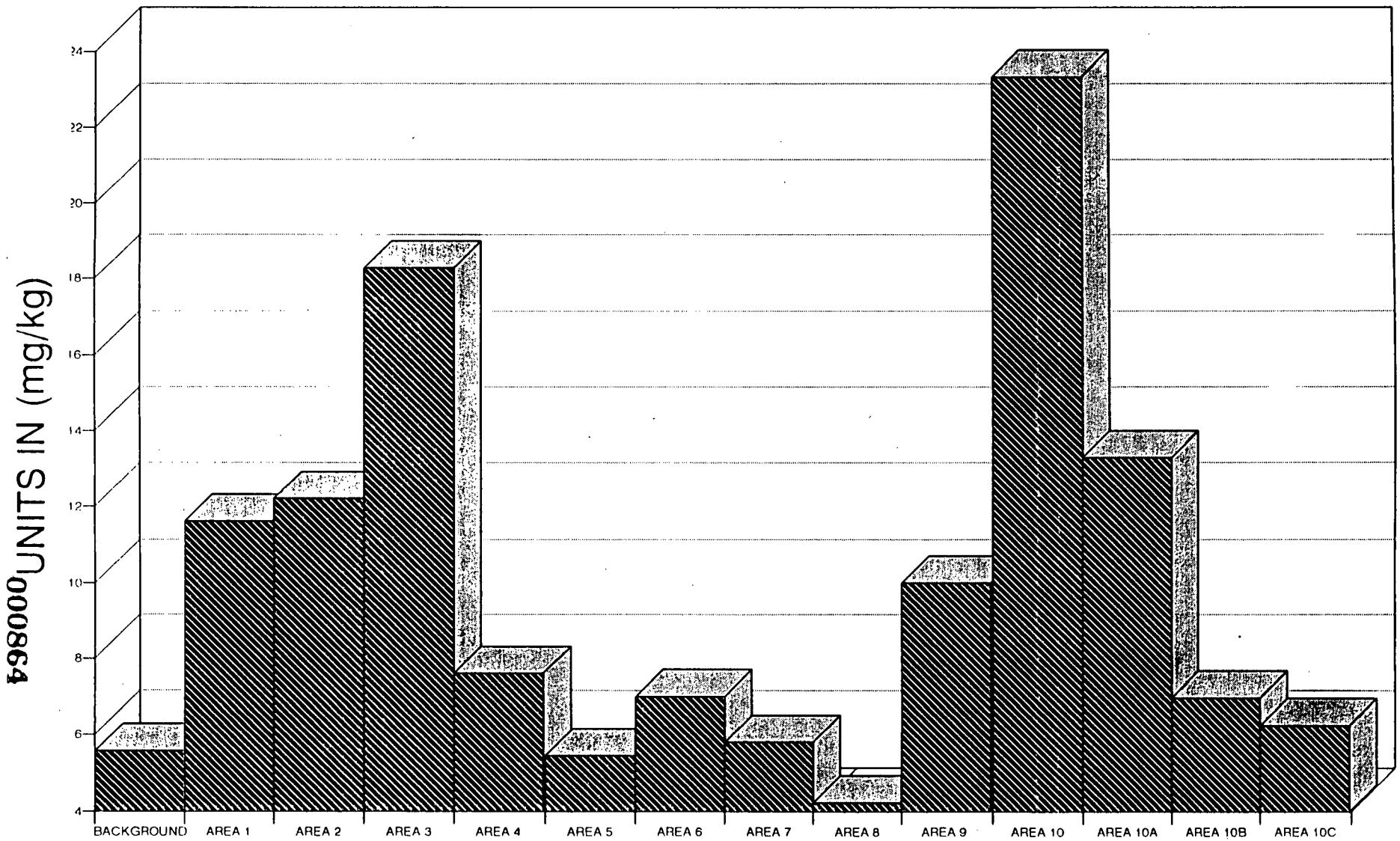
Figure A.IV-29

DRAFT

000863

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS



ARSENIC

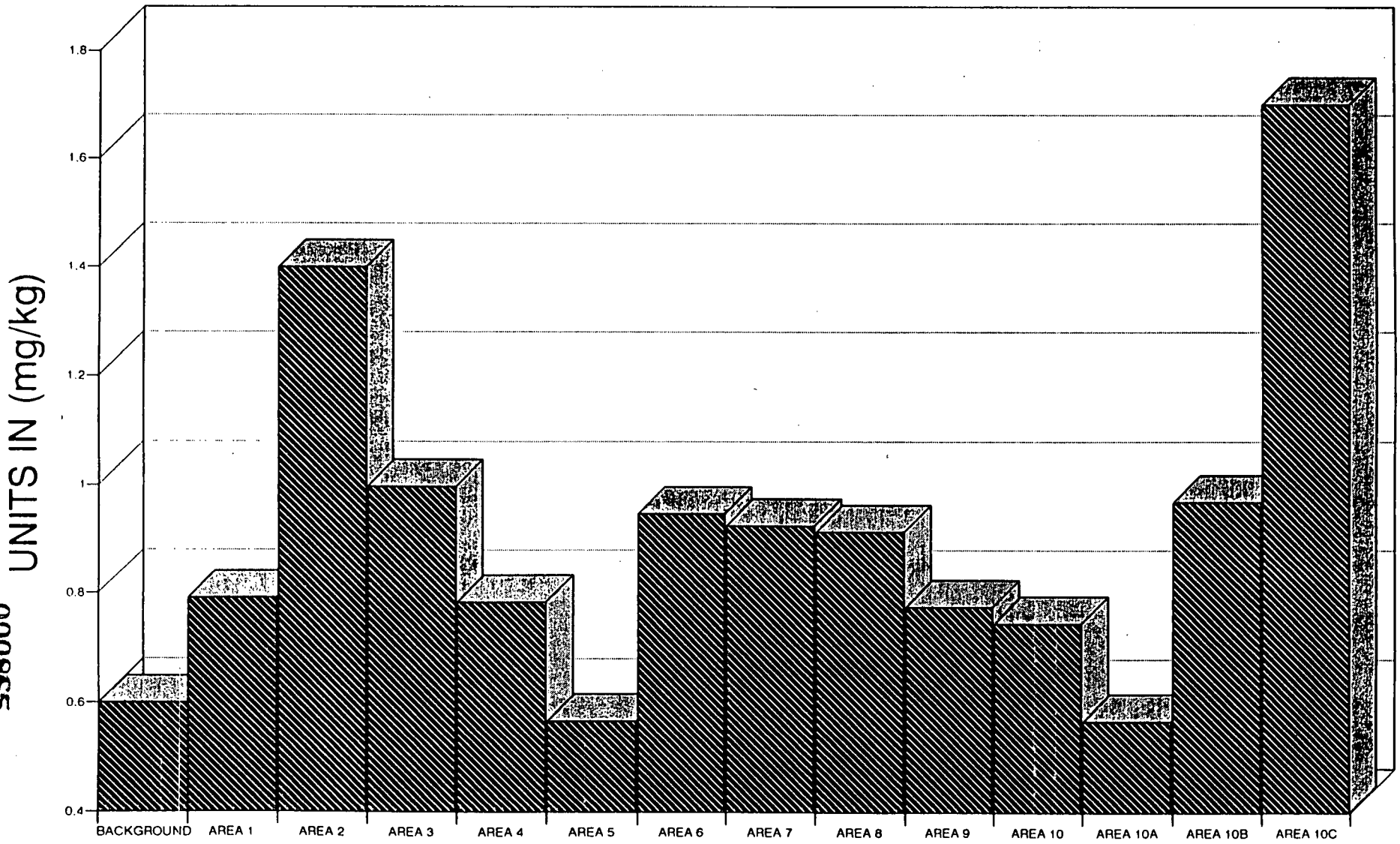
Figure A.IV-30

DRAFT

000864

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



BERYLLIUM

Figure A.IV-31

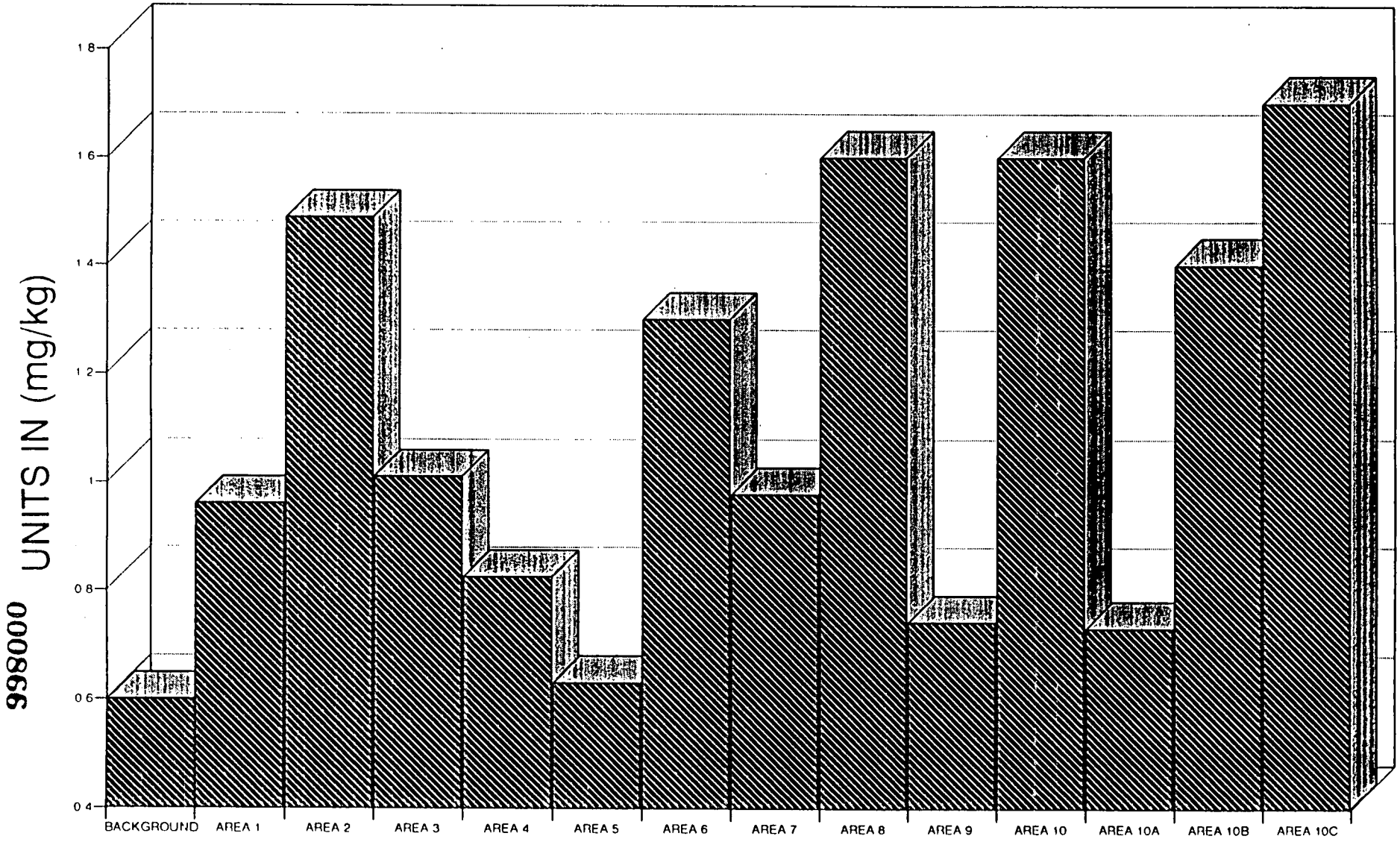
DRAFT

000865

66977

EXPOSURE POINT CONCENTRATIONS

FOR ON SITE SURFACE SOILS



BERYLLIUM

Figure A.IV-32

DRAFT

998000

5697

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL

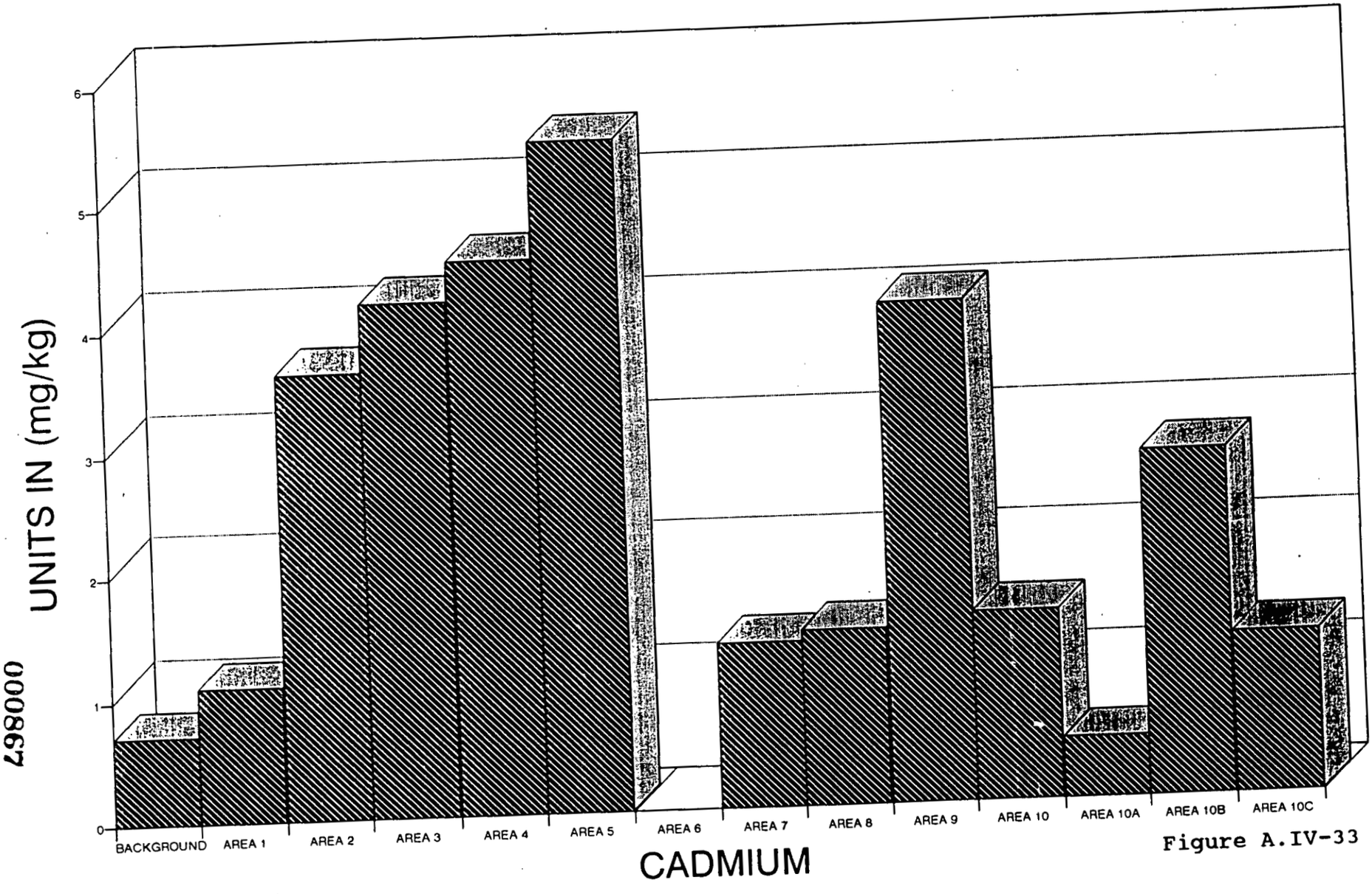


Figure A.IV-33

DRAFT

000867

56997

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL

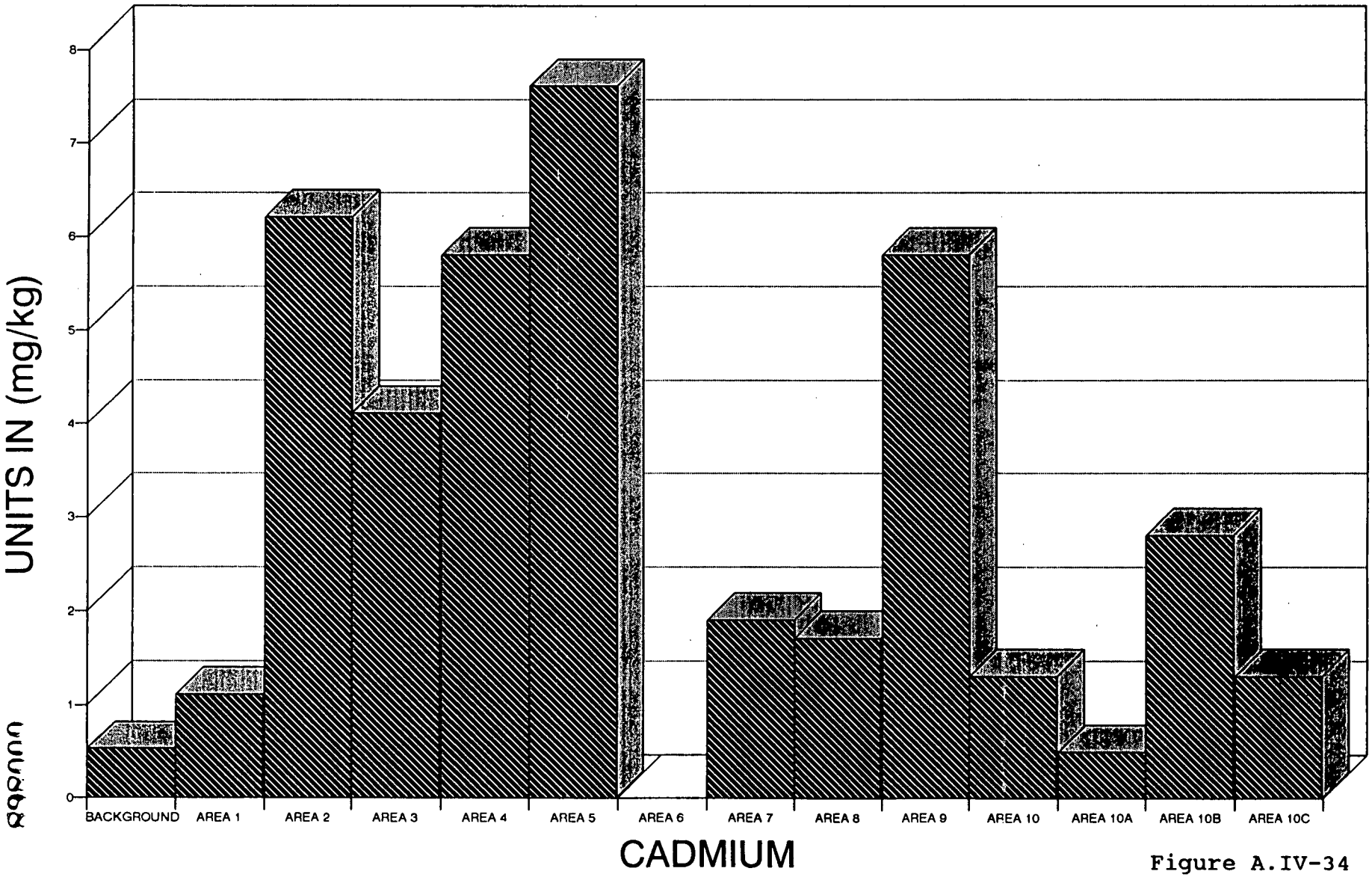


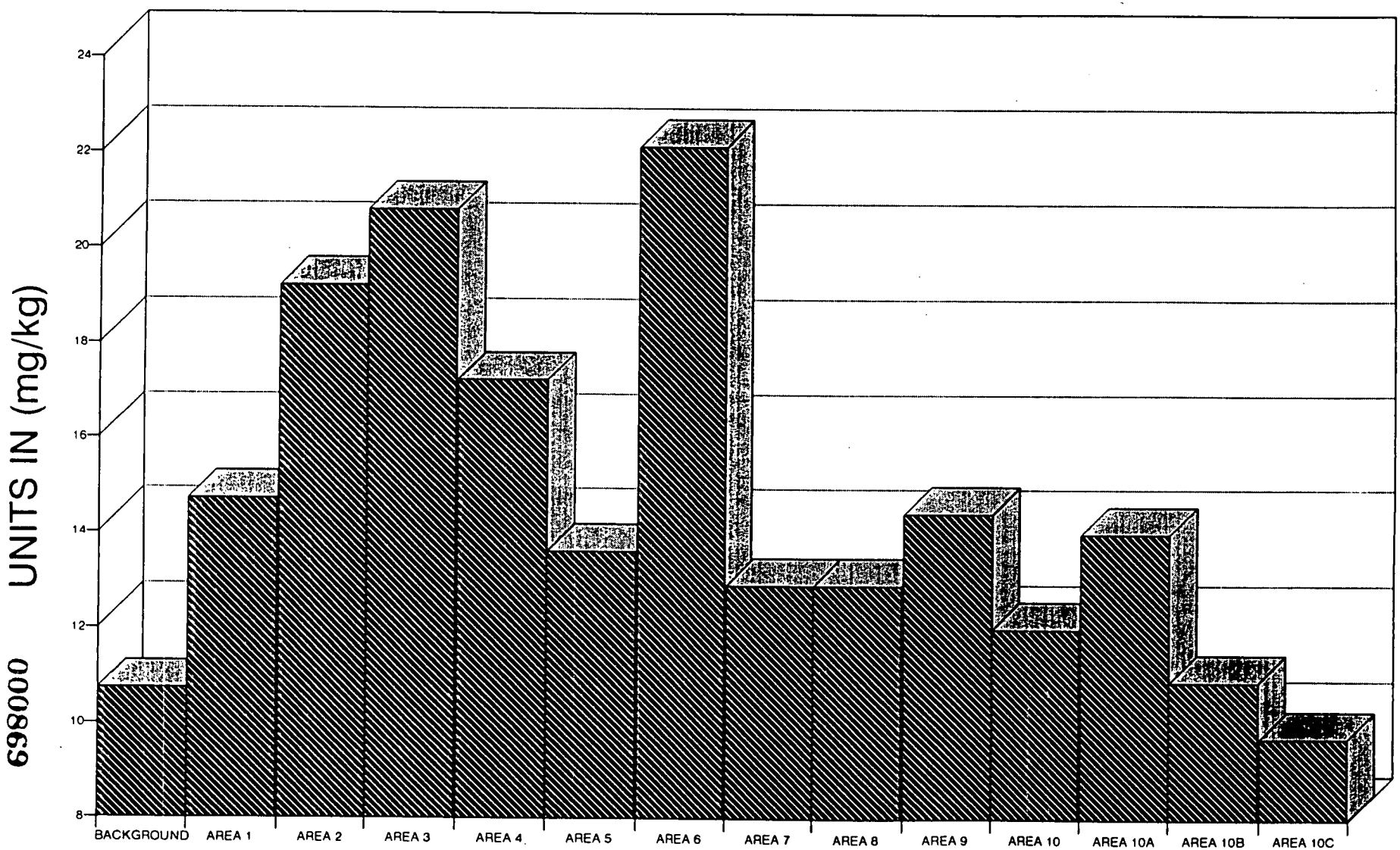
Figure A.IV-34

DRAFT

5697

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL



CHROMIUM

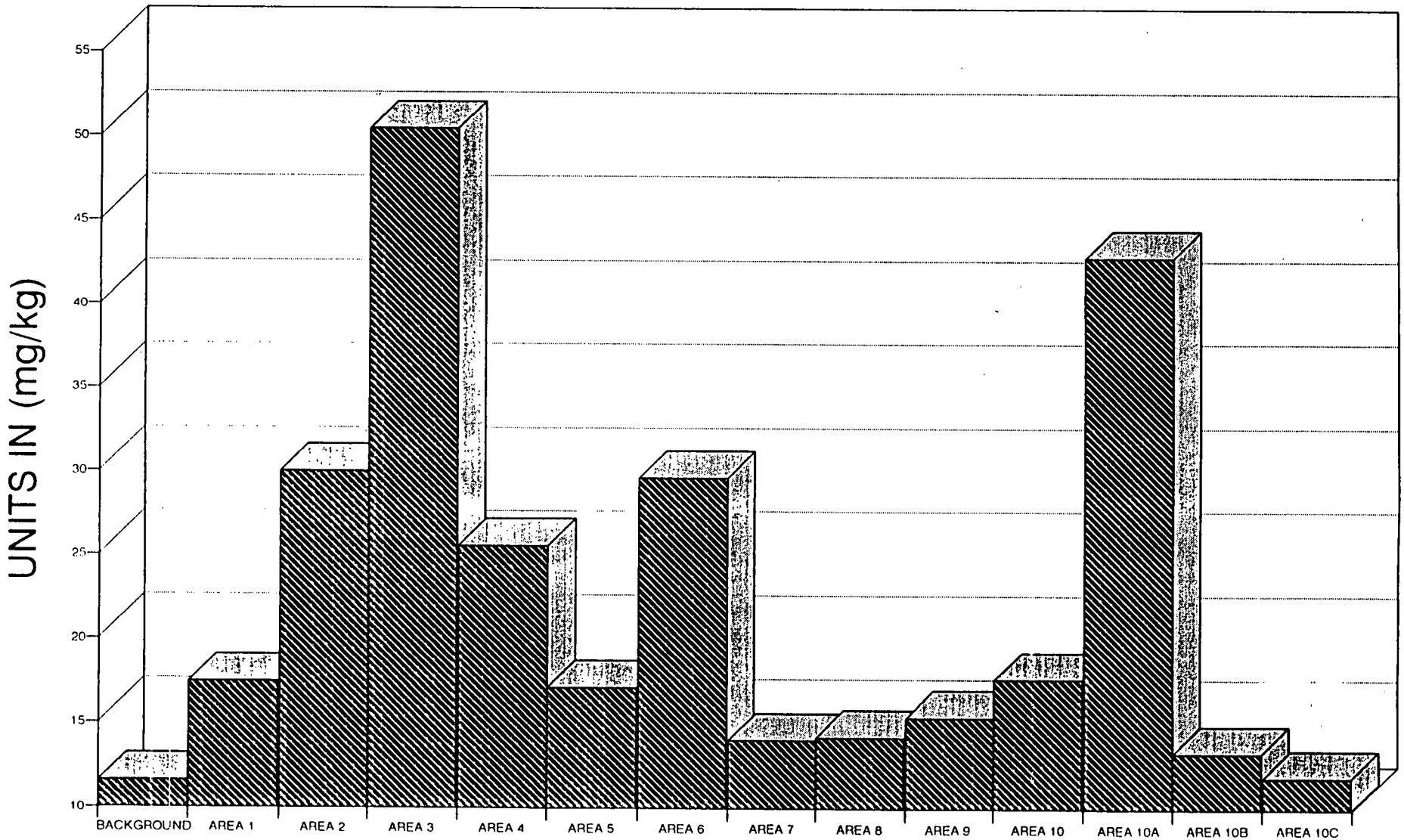
DRAFT

Figure A.IV-35

698000

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



CHROMIUM

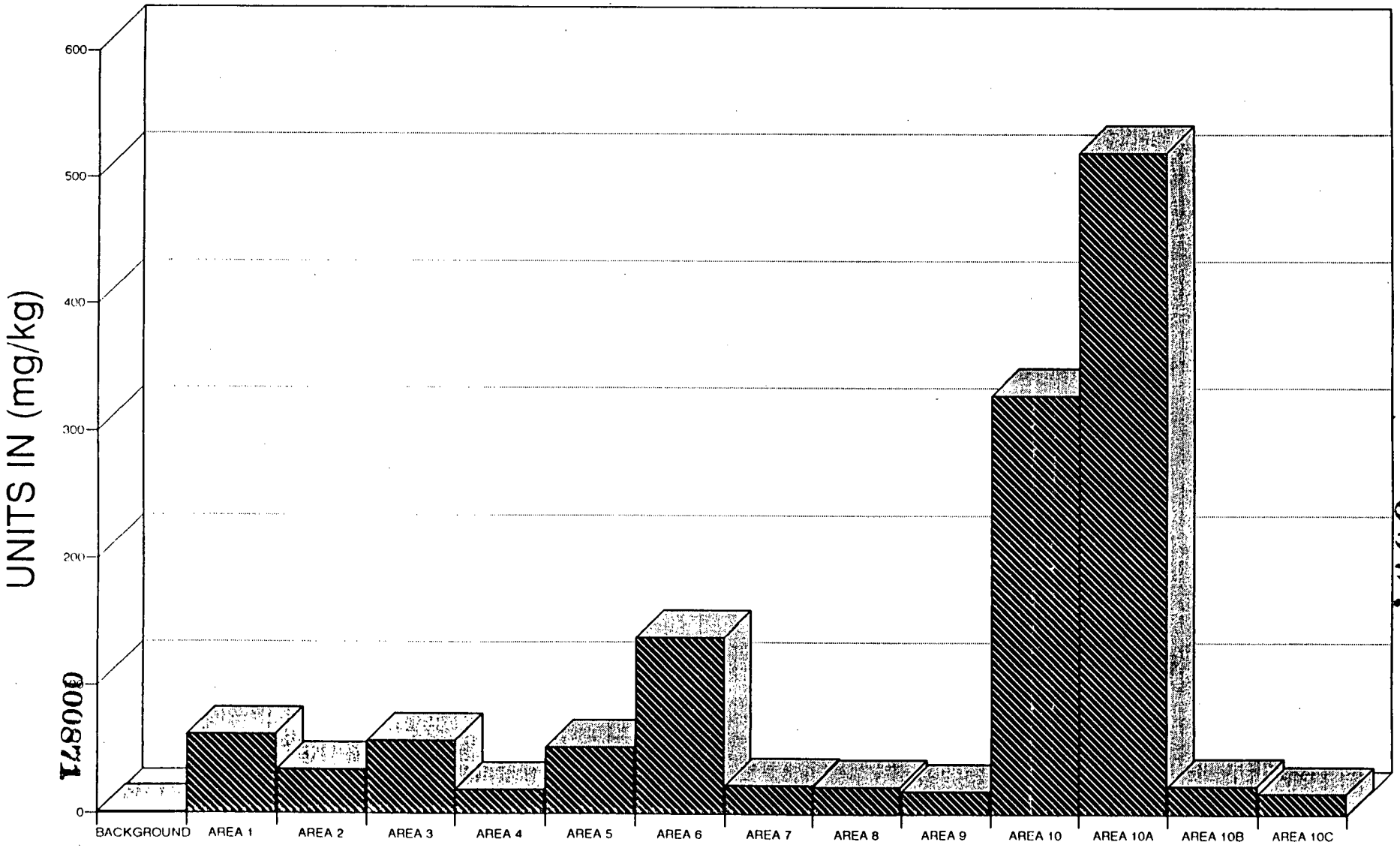
Figure A.IV-36

DRAFT

000870

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



LEAD

DRAFT

Figure A.IV-37

008871

56997

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS

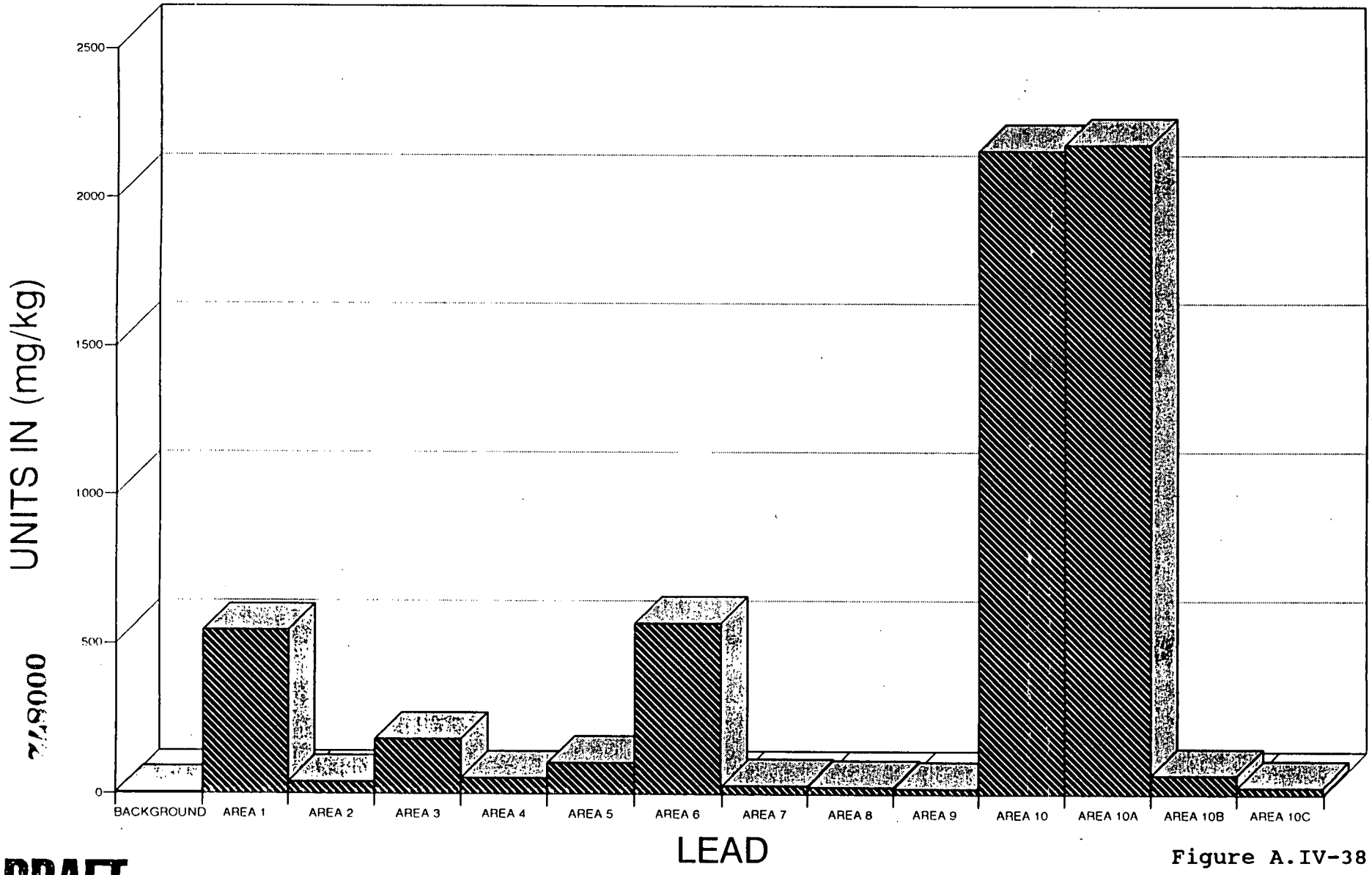


Figure A.IV-38

DRAFT

000872

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL

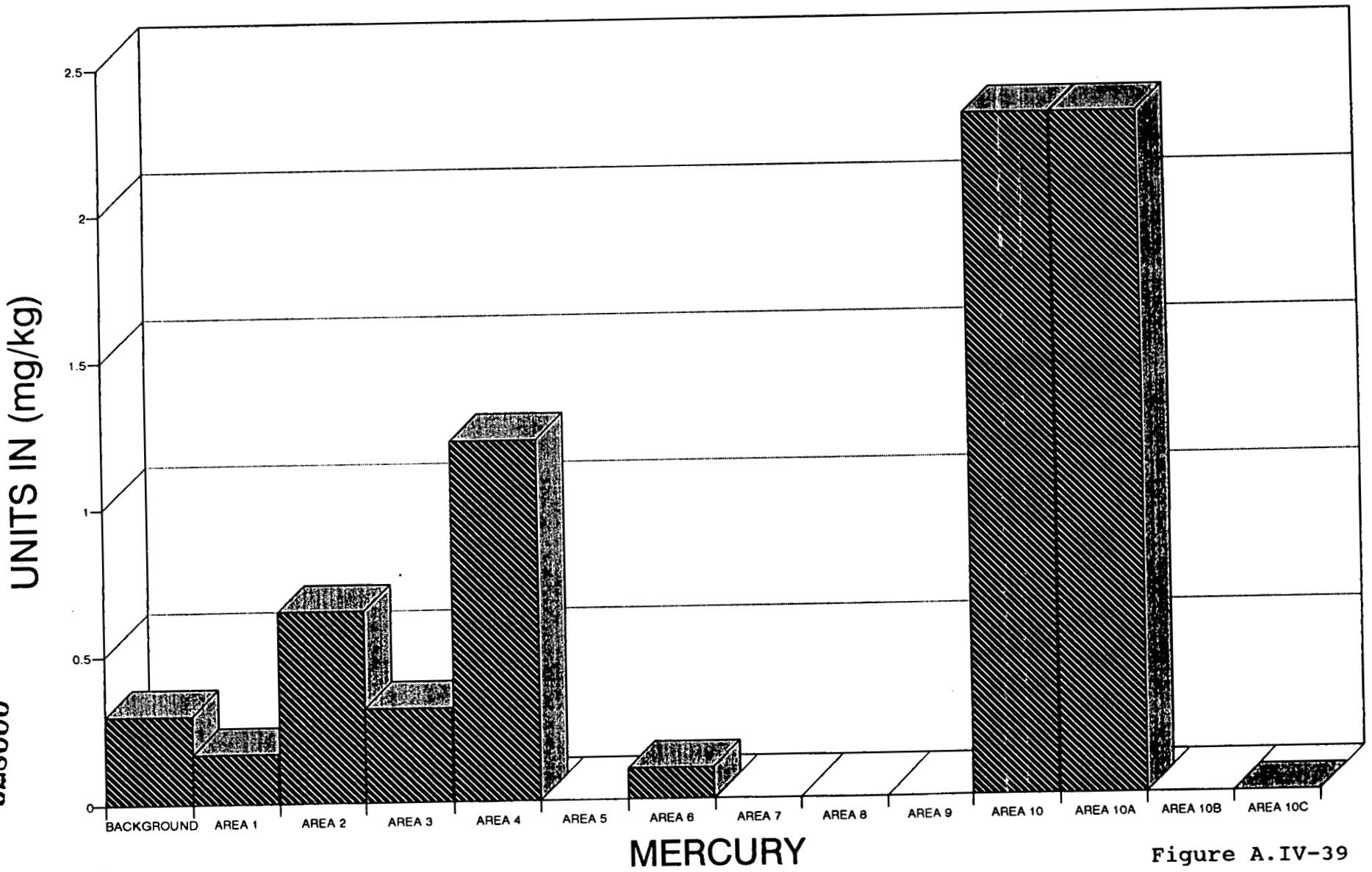


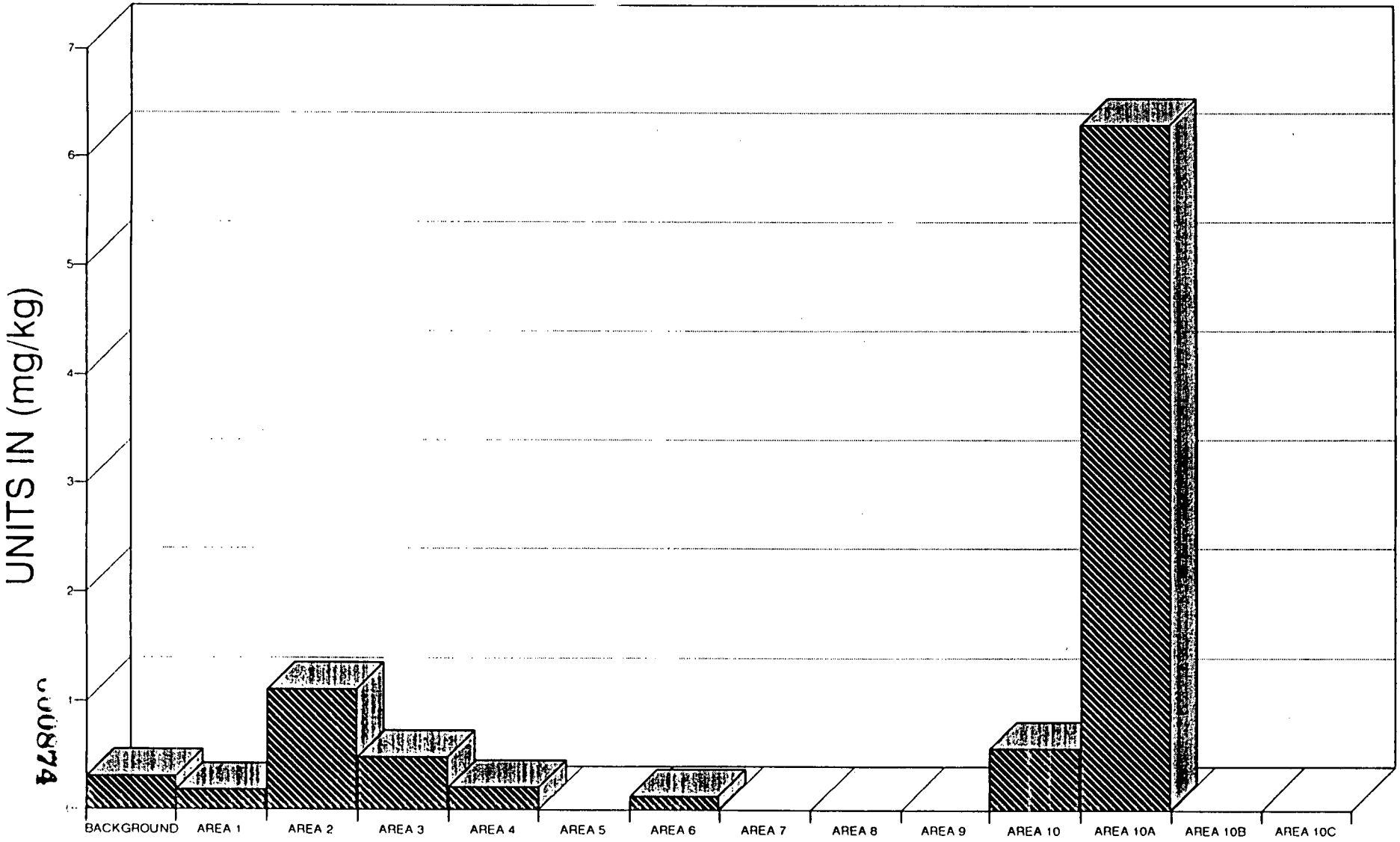
Figure A.IV-39

DRAFT

000873

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS



MERCURY

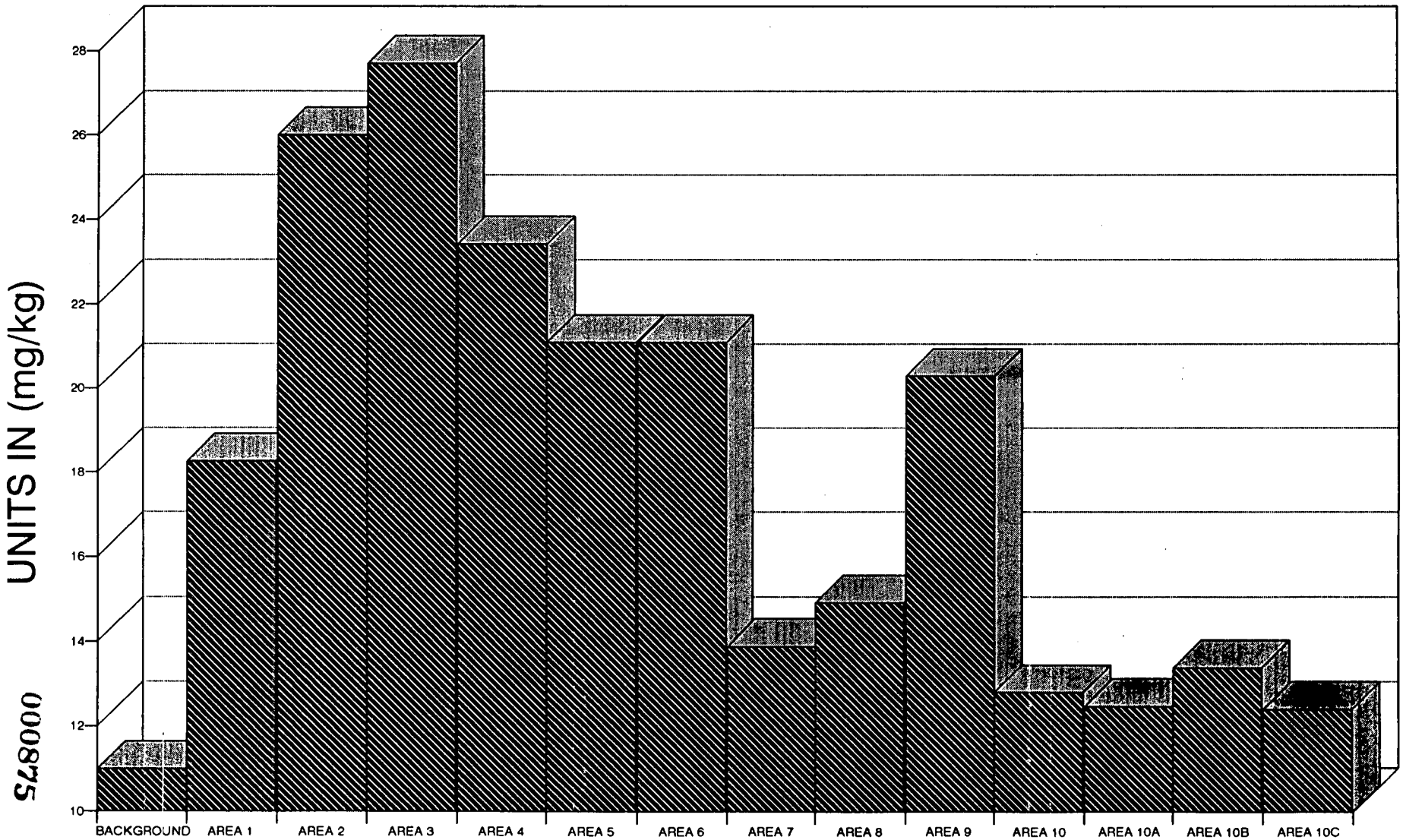
DRAFT

Figure A.IV-40

000874

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



NICKEL

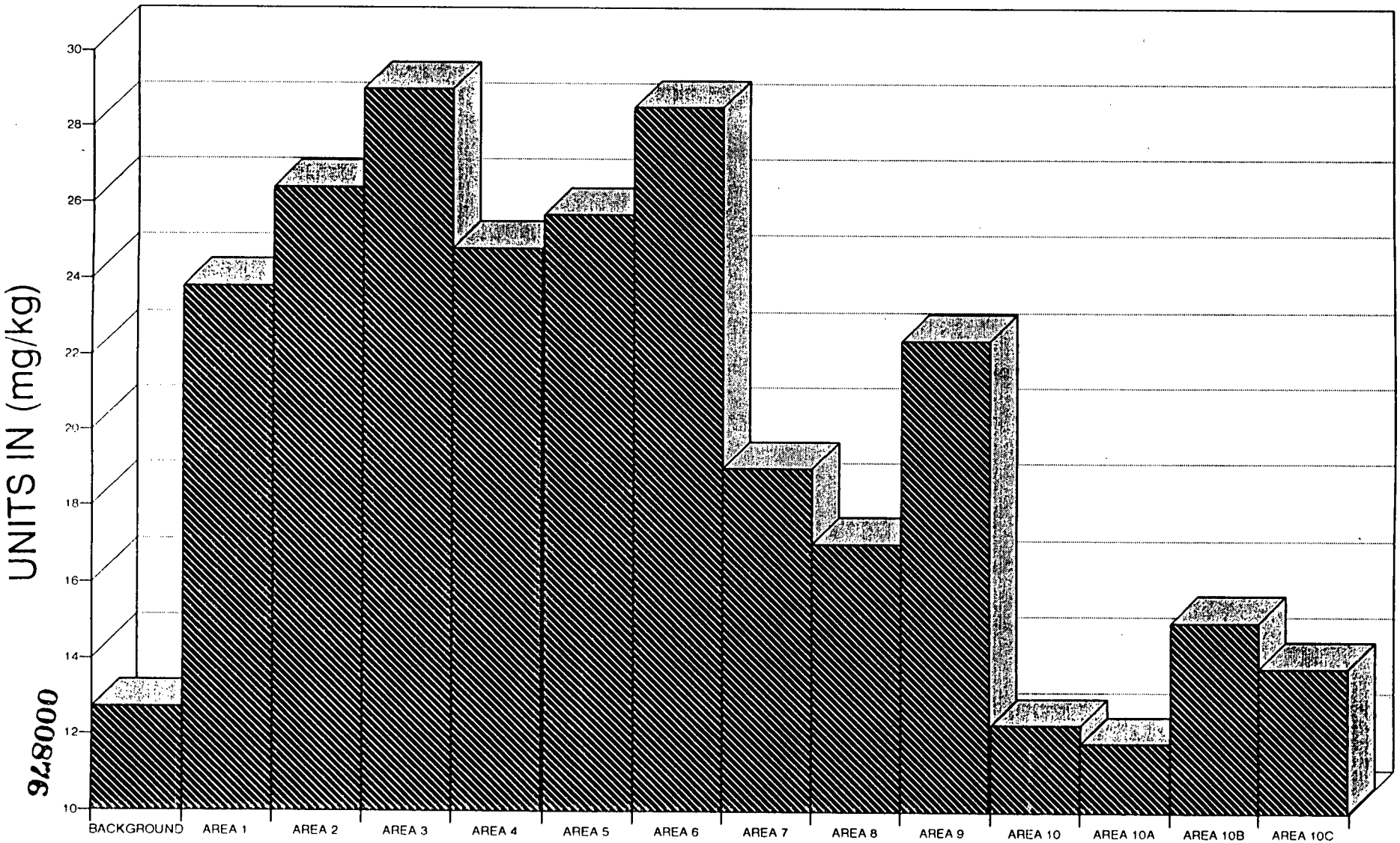
DRAFT

Figure A.IV-41

000875

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS



NICKEL

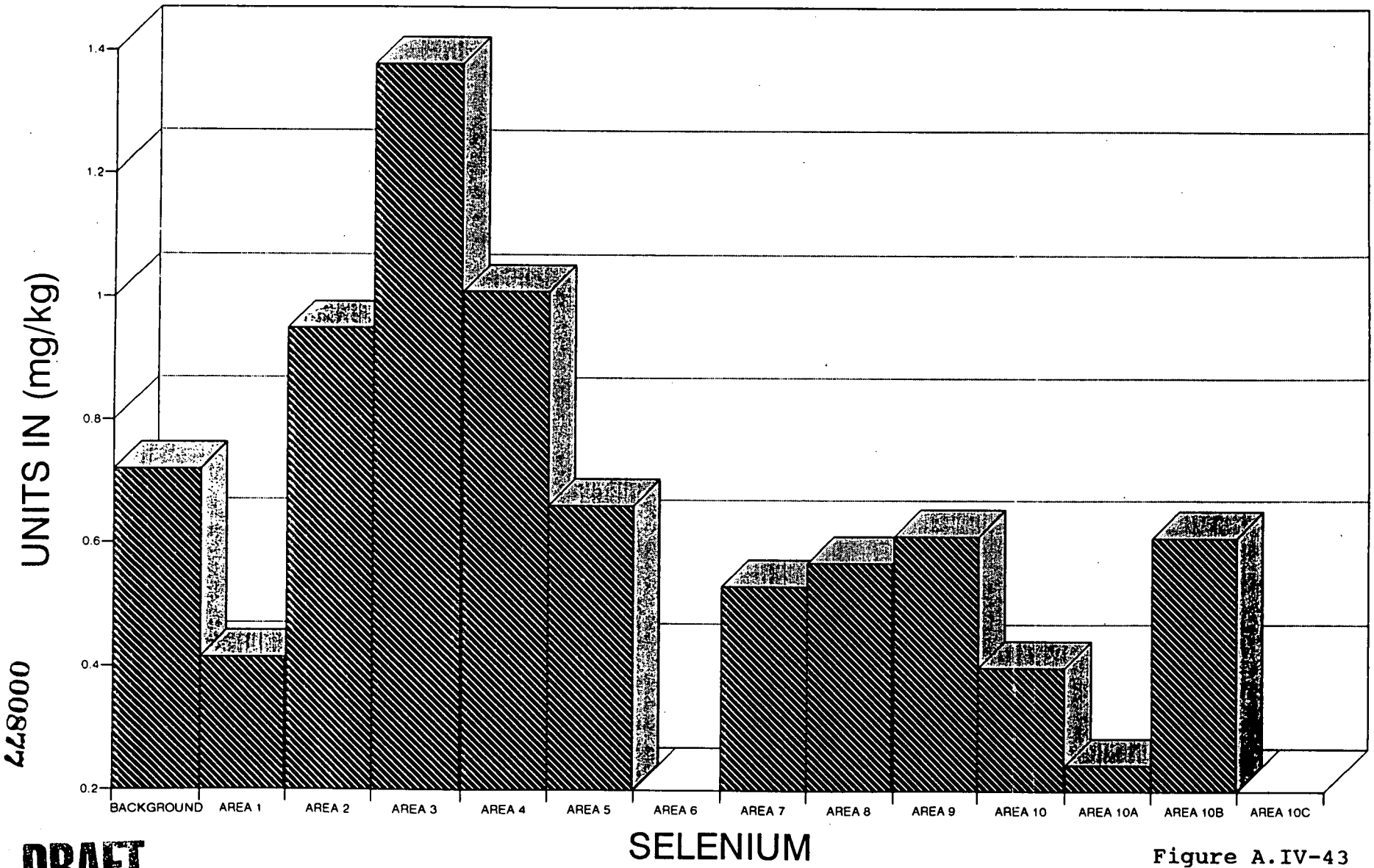
DRAFT

Figure A.IV-42

000876

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



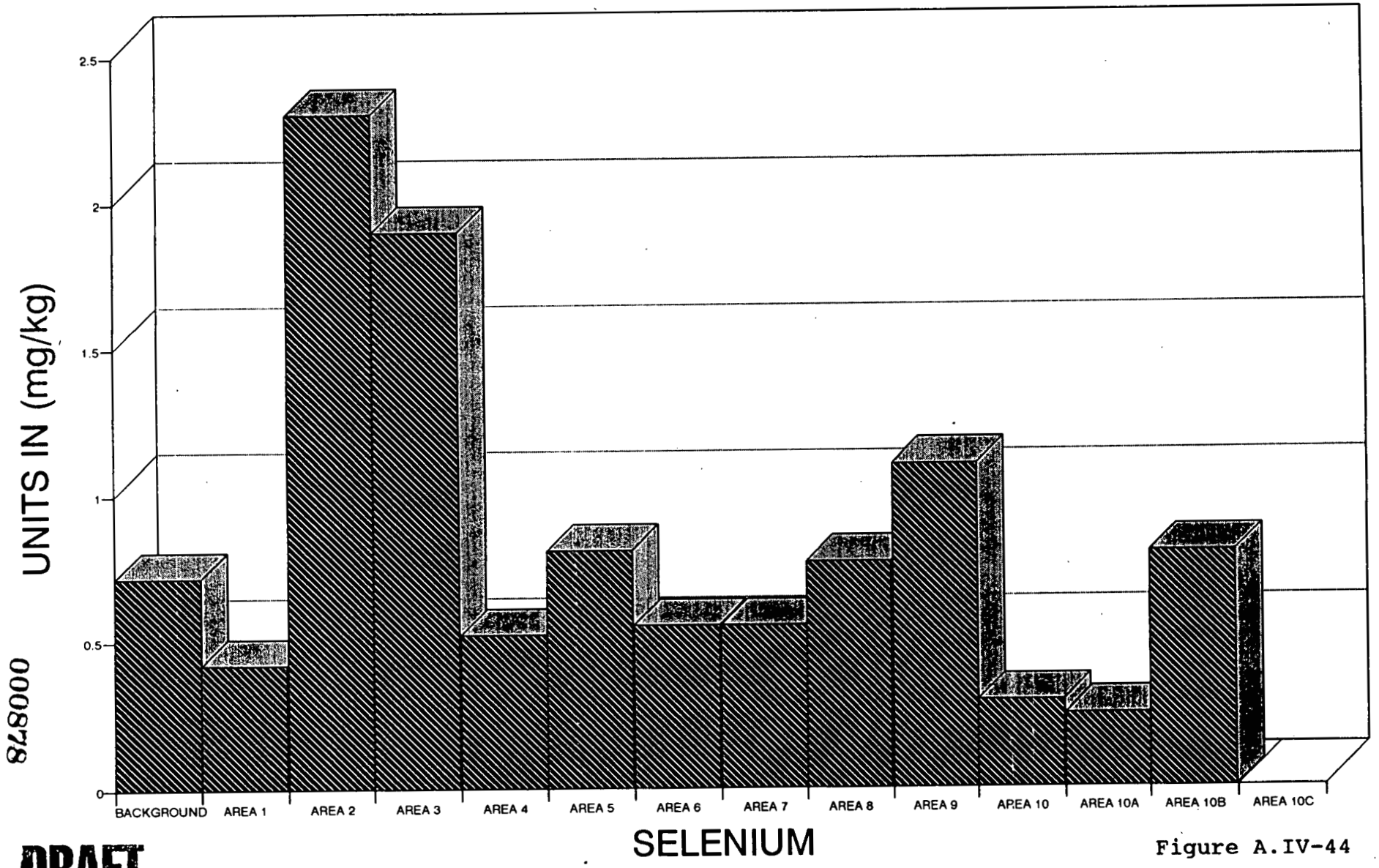
DRAFT

Figure A.IV-43

000877

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL



DRAFT

Figure A.IV-44

000878

5697

AVERAGE OF POSITIVE DETECTIONS

FOR ON SITE SURFACE SOIL

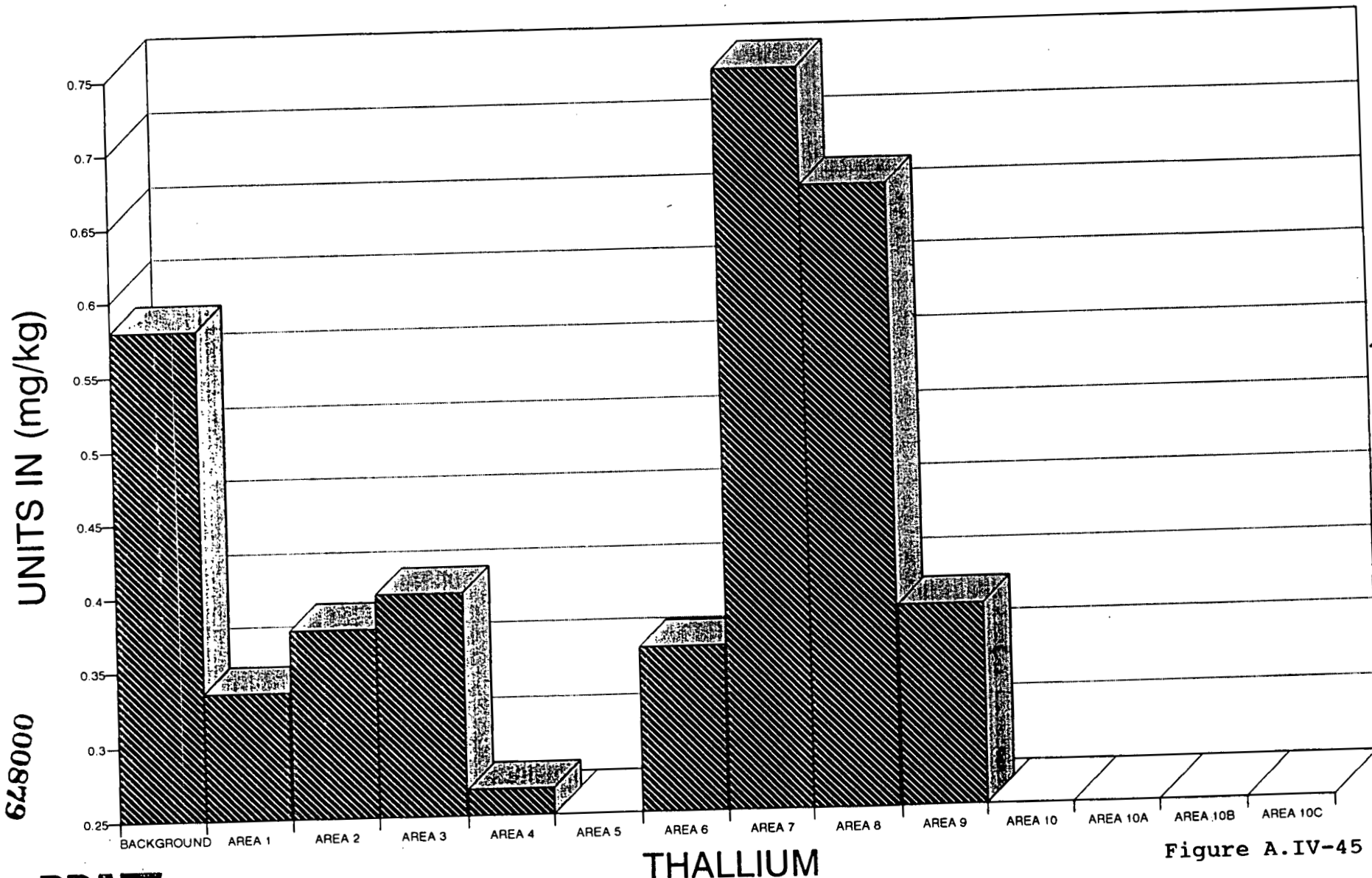


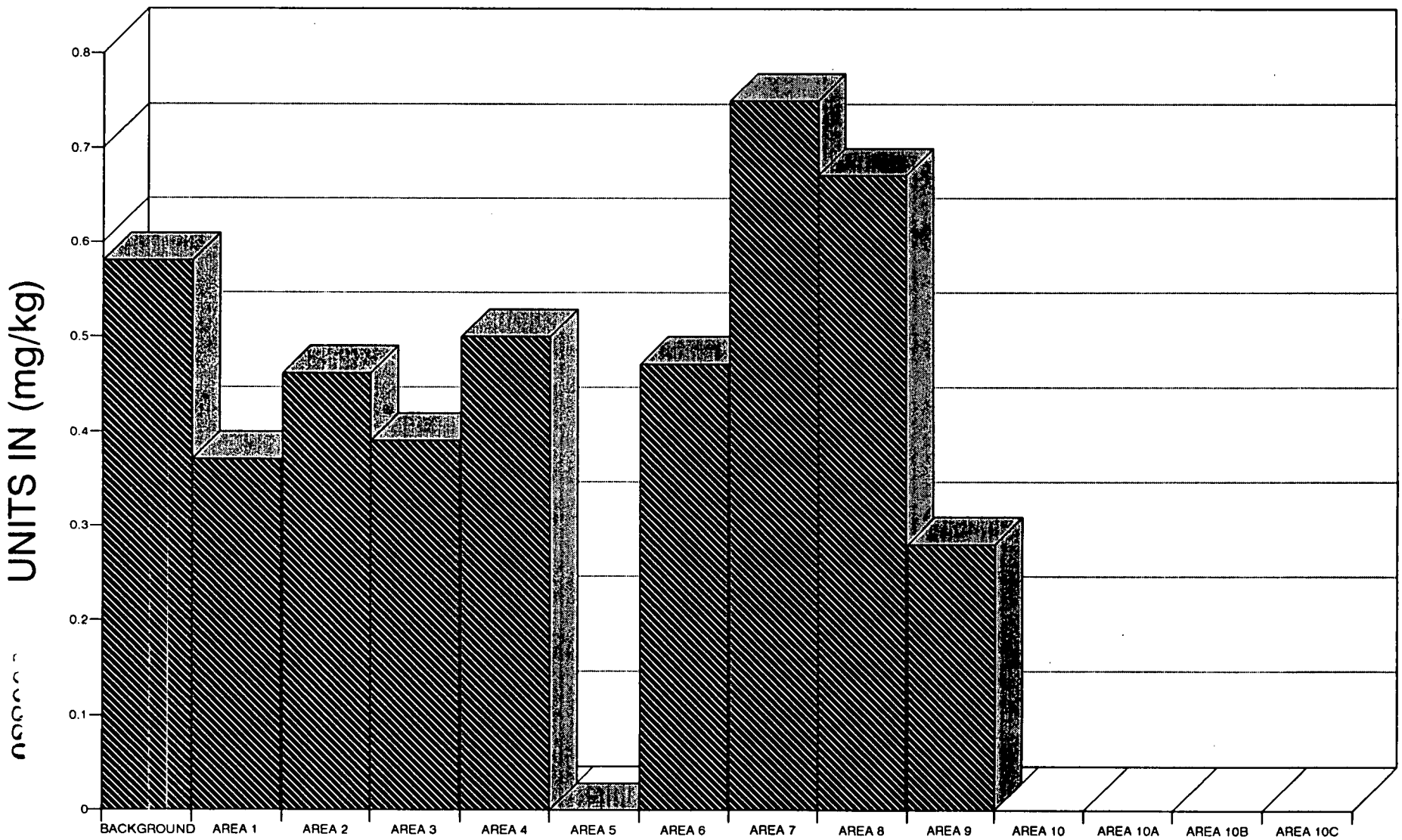
Figure A.IV-45

DRAFT

000879

5697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOIL

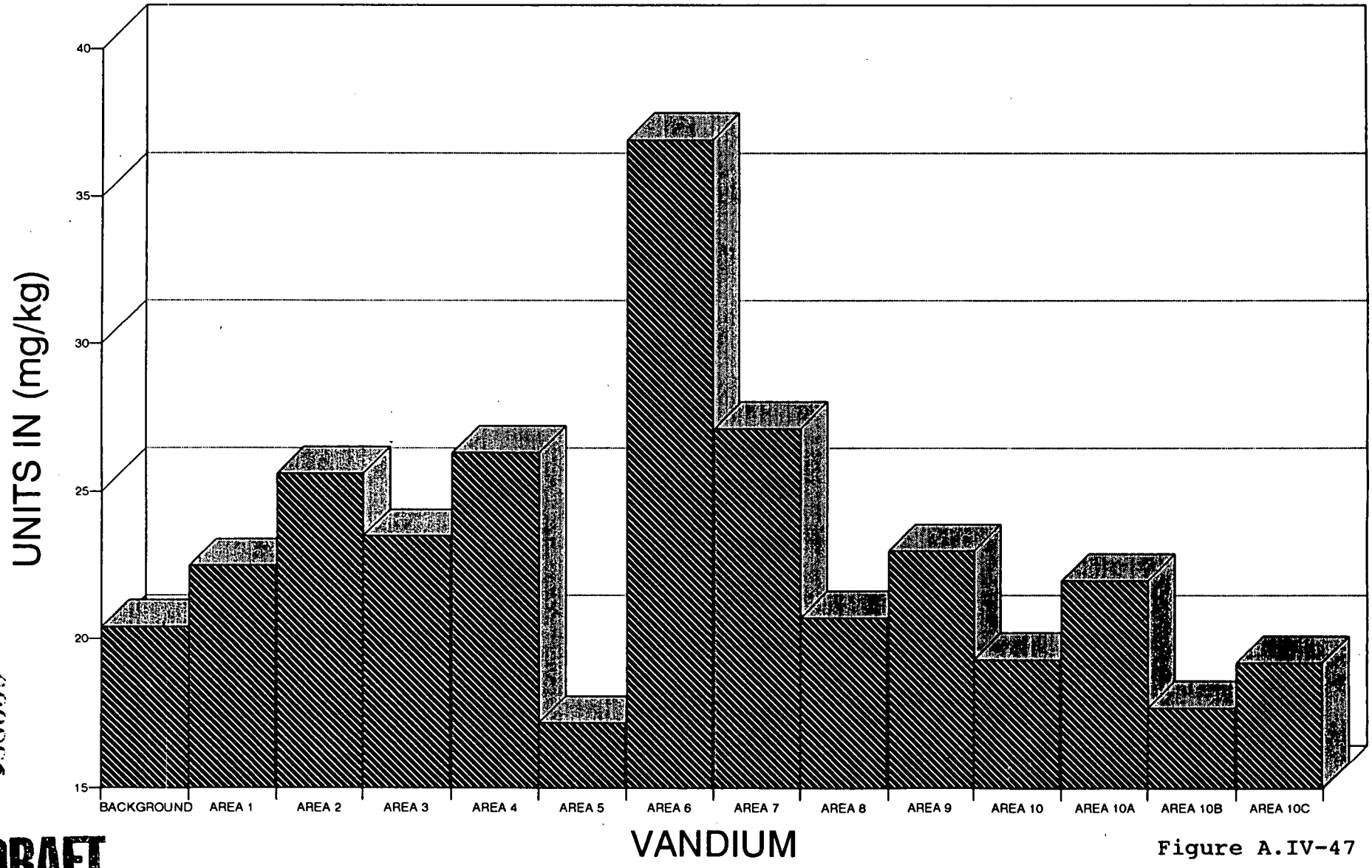


THALLIUM

DRAFT

Figure A.IV-46

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



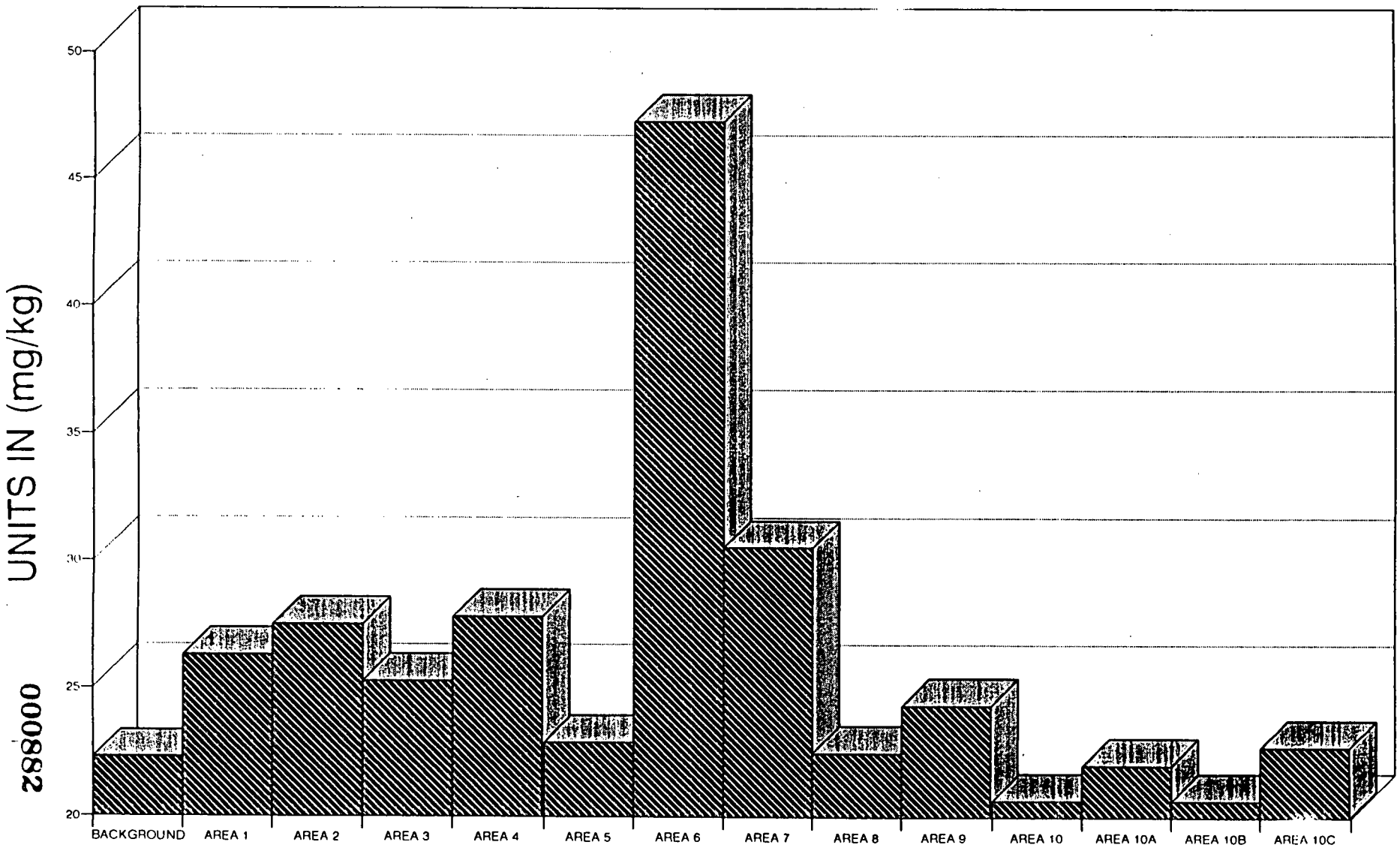
DRAFT

Figure A.IV-47

000881

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS



VANADIUM

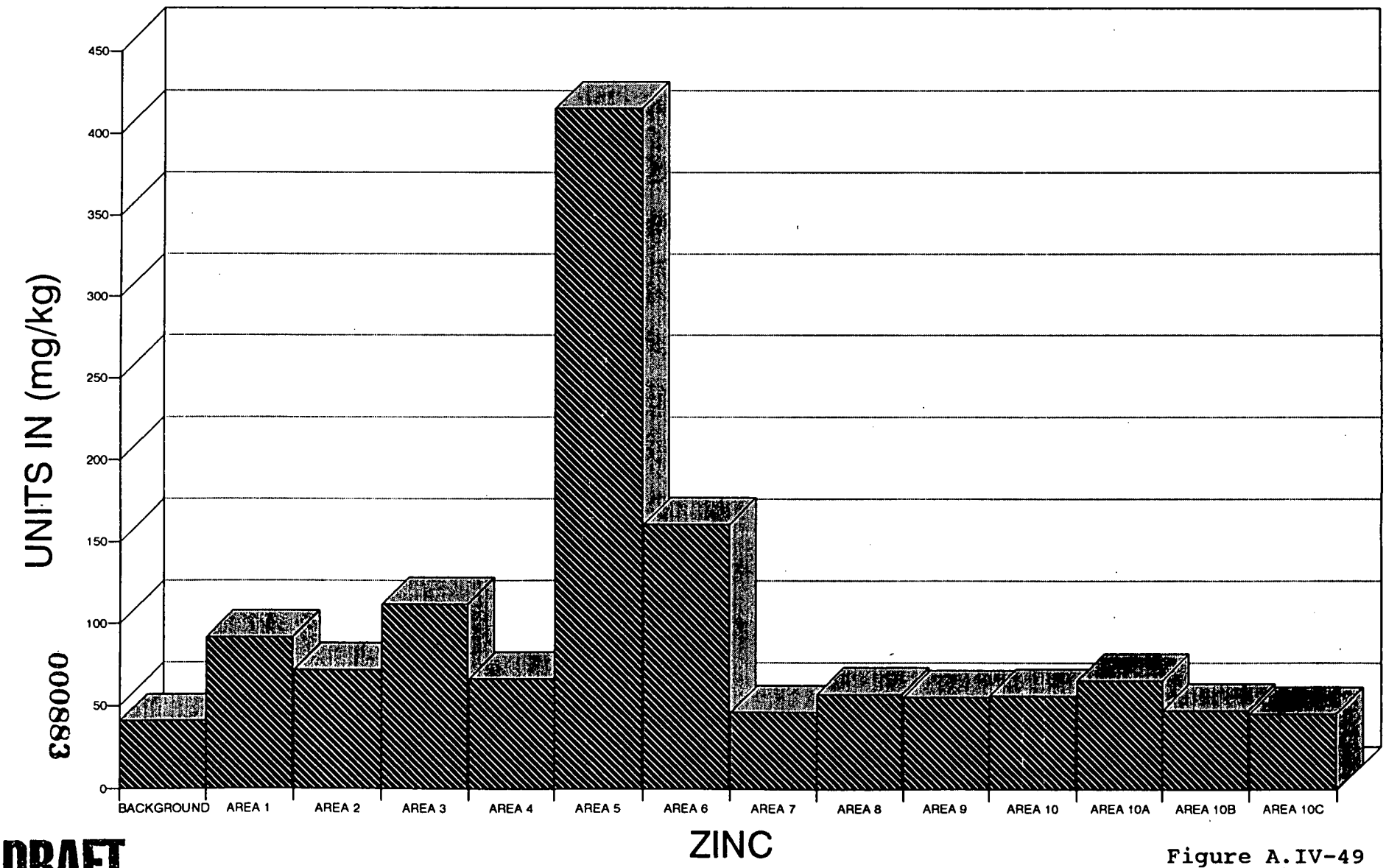
DRAFT

Figure A.IV-48

288000

5697

AVERAGE OF POSITIVE DETECTIONS
FOR ON SITE SURFACE SOIL



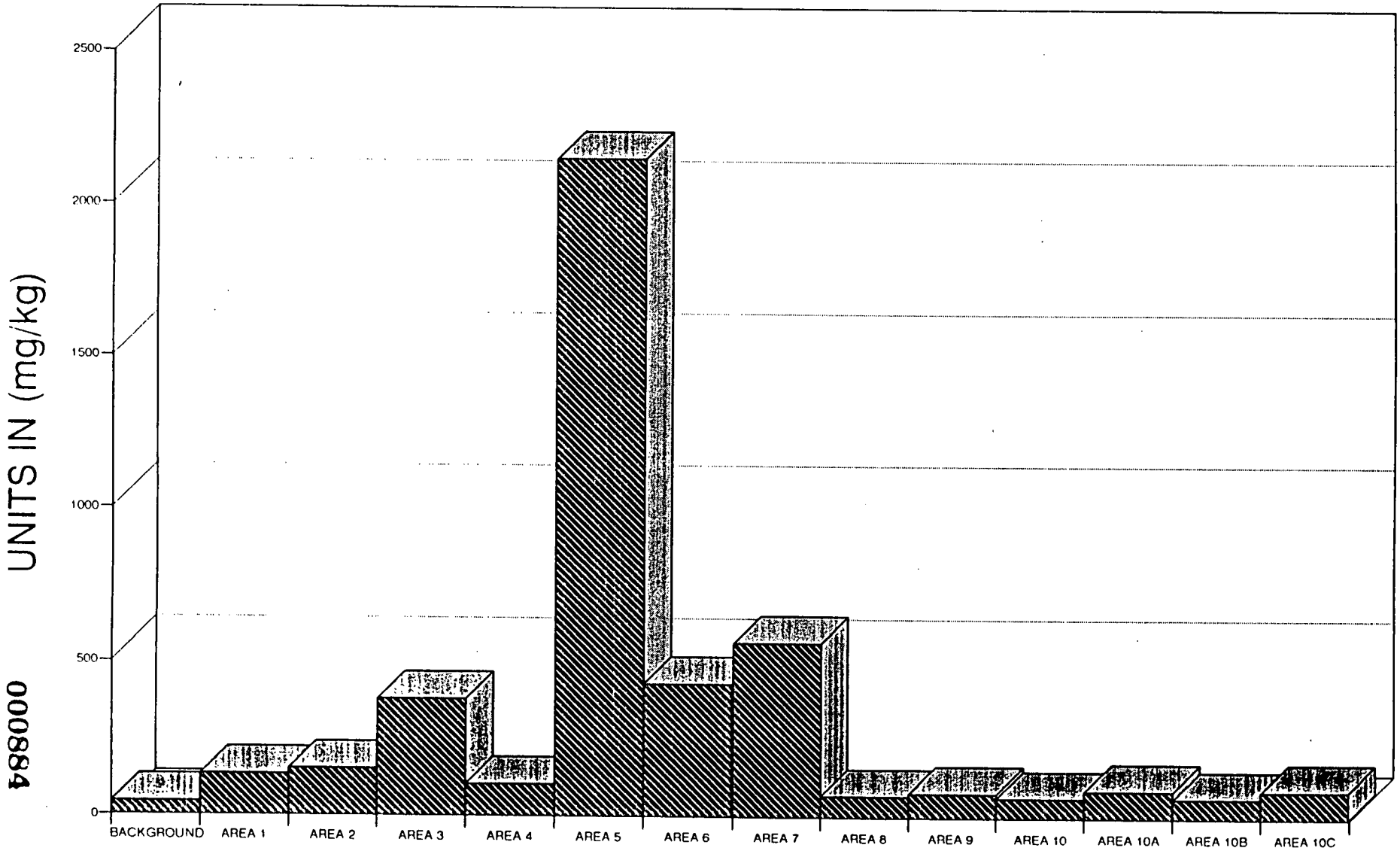
DRAFT

Figure A.IV-49

000883

6697

EXPOSURE POINT CONCENTRATIONS
FOR ON SITE SURFACE SOILS



ZINC

DRAFT

Figure A.IV-50

000884

6697

A.V TOXICITY PROFILES

A.V.1 ACENAPHTHYLENE

A.V.1.1 Noncancer Toxicity

Noncancer toxicity data were not located for acenaphthylene, but the chemical is structurally very similar to acenaphthene. Acenaphthene appears to be a mild hepatotoxicant, and possibly a nephrotoxicant, in rodents (EPA 1994). It is reasonable to suspect that acenaphthylene may induce similar effects.

A.V.1.2 Carcinogenicity

The EPA (1993a) classifies acenaphthylene as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans), based on no human cancer data and inadequate cancer data in animals. The animal data consist of an inadequately reported lifetime skin painting study in which skin tumors were not observed in mice treated with acenaphthylene (Cook 1932). Tumors were observed in mice treated with other PAHs.

A.V.2 ACETONE

A.V.2.1 Noncancer Toxicity

Studies of workers exposed to acetone revealed irritation of the ocular and respiratory tract mucosa, and, at high concentrations, central nervous system (CNS) effects (American Conference of Governmental Industrial Hygienists [ACGIH] 1991). Rats exposed by inhalation to high concentrations exhibited narcosis and slight decreases in organ and body weight, compared with controls, but no clinical pathological or histopathological evidence of organ damage. Inhalation reference concentration (RfC) values were not located for acetone. Oral toxicity data are limited to a comprehensive 90-day gavage study in rats, in which 100 mg/kg/day was a no observed effect level (NOEL) and 500 mg/kg/day was the lowest observed adverse effect level (LOAEL) associated with increased liver and kidney weight and tubular nephropathy (EPA 1994). A verified reference dose RfD for chronic oral exposure of 0.1 mg/kg/day was derived by applying an uncertainty factor of 1000 to the NOEL of 100 mg/kg/day. The EPA (1992b) presented a provisional subchronic oral RfD of 1 mg/kg/day, based on the same NOEL and an uncertainty factor of 100. The target organs for

inhalation exposure to acetone are the CNS and the respiratory and ocular mucosa. Target organs for oral exposure are the liver and kidney.

A.V.3 ACETONITRILE

A.V.3.1 Noncancer Toxicity

Acetonitrile is a poison by ingestion and intraperitoneal routes. It is moderately toxic by several routes. It is a skin and severe eye irritant (Sax and Lewis, 1989). Target organs are the kidney, liver, CVS, CNS, lungs, skin and eyes (NIOSH, 1990). The USEPA Integrated Risk Information System (IRIS) has reported a RfD for the oral route of exposure of 6.0E-3 mg/kg/day (EPA, 1994). EPA (1992b) has reported a RfD for the inhalation route of 1.4E-2 mg/kg/day. Both were based on an uncertainty factor of 3000.

A.V.3.2 Carcinogenicity

Acetonitrile is an experimental teratogen. Some mutagenic data exists (Sax and Lewis, 1989).

A.V.4 ACROLEIN

A.V.4.1 Noncancer Toxicity

Acrolein is a human poison by inhalation and intradermal routes. It is a poison experimentally by most routes (Sax and Lewis, 1989). Target organs are the heart, eyes, skin and respiratory system (NIOSH 1990). A RfD of 5.7E-6 mg/kg/day has been reported (EPA, 1994) based on calculation from a reference concentration. An uncertainty factor of 1000 was used.

A.V.4.2 Carcinogenicity

No studies were located regarding carcinogenic effects in humans after inhalation, oral, or dermal exposure to acrolein (ATSDR, 1989, draft). The EPA (1993a) classifies acrolein in cancer weight-of-evidence Group C (Possible Human Carcinogen) based on increased cortical tumors in female rats.

A.V.5 ACRYLONITRILE

A.V.5.1 Noncancer Toxicity

Acrylonitrile is a poison by inhalation, ingestion, skin contact and other routes. Acrylonitrile closely resembles hydrocyanic acid in its toxic action. By inhibiting the respiratory enzymes of tissue it renders the tissue cells incapable of oxygen absorption. Poisoning is acute: there is little evidence of cumulative action on repeated exposure (Sax and Lewis, 1989). Target organs are the CVS, liver, kidneys, CNS, skin, brain tumor, lung and bowel cancer. (NIOSH, 1990). The EPA (1993a) has presented an RfD of 5.7E-4 mg/kg/day for the inhalation route based on calculation from a reference concentration. An uncertainty factor of 1000 was used.

A.V.5.2 Carcinogenicity

Acrylonitrile is an experimental tumorigen, neoplastigen and teratogen. Some human mutagenic data exist. (Sax and Lewis, 1989). The EPA (1993a) has reported CSFs of 5.4E-1 and 2.4E-1 mg/kg/day for the oral and inhalation routes respectively. The inhalation factor is based on calculation from a unit risk value. The EPA (1993a) classifies acrylonitrile in cancer weight-of-evidence group B1 (probable human carcinogen, limited evidence in humans) based on lung cancer in exposed workers and brain tumors in rats.

A.V.6 ACTINIUM

A.V.6.1 Pharmacokinetics

Data from animal studies suggest that the extent of GI absorption of actinium is very low (no quantification provided) (Burkart 1988a); however, the extent of GI absorption may be greater in humans exposed to low levels in the environment (Burkart 1988b). EPA (1993) presented a GI absorption factor of 0.001, but documentation was not provided. Accidental human exposure studies show that inhaled oxides and hydroxides of actinium are cleared very slowly from the lungs (Burkart 1988a). Actinium was assigned to International Commission on Radiological Protection (ICRP) class "Y," meaning that clearance from the lungs is expected to take years (EPA 1993). Absorbed actinium is concentrated principally in the liver and skeleton, and to a lesser degree in the kidneys.

A.V.6.2 Noncancer Toxicity

Data regarding the noncancer effects of actinium were not located.

A.V.6.3 Carcinogenicity

The EPA classifies all radionuclides as weight-of-evidence Group A substances (human carcinogens) based on their characteristic of emitting ionizing radiation and on the extensive epidemiologic data associating exposure with radiogenic cancers in humans (EPA 1993b). The carcinogenicity of actinium-227 is due to its emission of low-energy beta particles (Burkart 1988a). EPA (1993b) presents concern potency slope factors for actinium-227 and its seven radioactive decay products (alpha, beta, and gamma emitters) of 3.5×10^{-10} per pCi for ingestion, 8.8×10^{-8} per pCi for inhalation, and 8.5×10^{-7} per pCi-year/g for external exposure.

A.V.7 ALDRIN/DIELDRIN (Clement, 1985)

A.V.7.1 Health Effects

Both aldrin and dieldrin are carcinogens, causing increases in a variety of tumors in rats at low but not at high doses and producing a higher incidence of liver tumors in mice. The reason for this reversed dose-response relationship is unclear. Neither appears to be mutagenic when tested in a number of systems. Aldrin and dieldrin are both toxic to the reproductive system and teratogenic. Reproductive effects include decreased fertility, increased fetal death, and effects on gestation; while teratogenic effects include cleft palate, webbed foot, and skeletal anomalies. Chronic effects attributed to aldrin and dieldrin include liver toxicity and central nervous system abnormalities. Both chemicals are acutely toxic; the oral LD_{50} is around 50 mg/kg, and the dermal LD_{50} is about 100 mg/kg.

A.V.8 AMMONIA

A.V.8.1 Noncancer Toxicity

Ammonia is produced naturally as an end product of protein metabolism (Sax and Lewis 1987). Ammonia excreted in expired air may arise from the bacterial action in the mouth (EPA 1994). Nasal and throat irritation are consistent findings in humans exposed to ≥ 50 parts per million (ppm) in the air (Ferguson et al. 1977). No significant increase in ocular, dermal, or respiratory irritation was reported by workers, and no decrement in lung function was measured in workers exposed to a time

weighted average (TWA) concentration of 9.2 ppm (Holness et al. 1989). Lung function tests, however, may not be the most sensitive indicators of ammonia toxicity, as explained below.

In animals exposed to ≤500 ppm, lesions including irritation and hyperplasia were restricted to the upper respiratory tract (Gamble and Clough 1976; Flury et al. 1983; EPA 1994). At these concentrations, virtually the entire inhaled dose was taken up by the upper respiratory mucosa because of the high solubility and reactivity of ammonia. At higher concentrations, ammonia penetrated to the lungs and induced congestion, edema, and hemorrhage (Anderson et al. 1964). Congestion of the spleen and liver may arise from ammonia-induced impairment of pulmonary circulation.

The EPA (1993a) derived an RfC of 0.1 milligram per cubic meter (mg/m^3) for chronic inhalation exposure to ammonia, based on the no observed adverse effect level (NOAEL) of 9.2 ppm (6.4 mg/m^3) in the occupational study previously described. An uncertainty factor of 30 was applied, 10 to provide protection for sensitive individuals and 3 to account for deficiencies in the database, including lack of chronic data, proximity of the human NOAEL to an animal LOAEL, and lack of reproductive and developmental data. Confidence in the RfC was medium.

A.V.8.2 Carcinogenicity

The EPA (1993a) has not evaluated the carcinogenicity of ammonia.

A.V.9 ANTIMONY

A.V.9.1 Pharmacokinetics

Ingested antimony is absorbed slowly and incompletely from the gastrointestinal (GI) tract (Iffland 1988). Within a few days of acute exposure, highest tissue concentrations are found in the liver, kidney, and thyroid. Organs of storage include skin, bone, and teeth. Highest concentrations in deceased smelter workers (inhalation exposure) occurred in the lungs and skeleton. Excretion is largely via the urine or feces, although some is incorporated into the hair.

A.V.9.2 Noncancer Toxicity

Acute intoxication from ingestion of large doses of antimony induces GI disturbances, dehydration, and cardiac effects in humans (Iffland 1988). Chronic effects from occupational exposure include irritation of the respiratory tract, pneumoconiosis, pustular eruptions of the skin called "antimony

spots," allergic contact dermatitis, and cardiac effects, including abnormalities of the electrocardiograph (ECG) and myocardial changes. Cardiac effects were also observed in rats and rabbits exposed by inhalation for six weeks and in animals (dogs, and possibly other species) treated by intravenous injection (Elinder and Friberg 1986a).

Chronic oral exposure studies in laboratory animals include two briefly reported lifetime drinking water studies in rats and mice (Kanisawa and Schroeder 1969; Schroeder et al. 1970). The only dose tested, 5 ppm potassium antimony tartrate, resulted in reduced longevity in both species and in reduced mean heart weight in the rats. The EPA (1993a) verified an RfD of 0.0004 mg/kg/day for chronic oral exposure to antimony from the LOAEL of 5 ppm potassium antimony tartrate (0.35 mg antimony/kg body weight-day) in the lifetime study in rats (Schroeder et al. 1970). An uncertainty factor of 1000 was applied; factors of 10 each for inter- and intraspecies variation and to estimate an NOAEL from an LOAEL. The heart is considered a likely target organ for chronic oral exposure of humans.

A.V.9.3 Carcinogenicity

Data were not located regarding the carcinogenicity of antimony to humans. Antimony fed to rats did not produce an excess of tumors (Goyer 1991), but a high frequency of lung tumors was observed in rats exposed by inhalation to antimony trioxide for one year (Elinder and Friberg 1986). Antimony is classified in EPA cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans) (EPA 1987a).

A.V.10 ARSENIC

A.V.10.1 Pharmacokinetics

Several studies confirm that soluble inorganic arsenic compounds and organic arsenic compounds are almost completely (>90 percent) absorbed from the GI tract in both animals and humans (Ishinishi et al. 1986). The absorption efficiency of insoluble inorganic arsenic compounds depends on particle size and stomach pH. Initial distribution of absorbed arsenic is to the liver, kidneys, and lungs, followed by redistribution to hair, nails, teeth, bone, and skin, which are considered tissues of accumulation. Arsenic has a longer half-life in the blood of rats, compared with other animals and humans, because of firm binding to the hemoglobin in erythrocytes.

Metabolism of inorganic arsenic includes reversible oxidation-reduction so that both arsenite (valence of 3) and arsenate (valence of 5) are present in the urine of animals treated with arsenic of either valence (Ishinishi et al. 1986). Arsenite is subsequently oxidized and methylated by a saturable mechanism to form mono- or dimethylarsenate; the latter is the predominant metabolite in the urine of animals or humans. Organic arsenic compounds (arsenilic acid, cacodylic acid) are not readily converted to inorganic arsenic. Excretion of organic or inorganic arsenic is largely via the urine, but considerable species variation exists. Continuously exposed humans appear to excrete 60 to 70 percent of their daily intake of arsenate or arsenite via the urine.

A.V.10.2 Noncancer Toxicity

A lethal dose of arsenic trioxide in humans is 70 to 180 mg (approximately 50 to 140 mg arsenic; Ishinishi et al. 1986). Acute oral exposure of humans to high doses of arsenic produce liver swelling, skin lesions, disturbed heart function, and neurological effects. The only noncancer effects in humans clearly attributable to chronic oral exposure to arsenic are dermal hyperpigmentation and keratosis, as revealed by studies of several hundred Chinese exposed to naturally occurring arsenic in well water (Tseng 1977; Tseng et al. 1968; EPA 1994). Similar effects were observed in persons exposed to high levels of arsenic in water in Utah and the northern part of Mexico (Cebrian et al. 1983; Southwick et al. 1983). Occupational (predominantly inhalation) exposure is also associated with neurological deficits, anemia, and cardiovascular effects (Ishinishi et al. 1986), but concomitant exposure to other chemicals cannot be ruled out. The EPA (1993a) derived an RfD of 0.3 μg/kg/day for chronic oral exposure, based on an NOAEL of 0.8 μg/kg/day for skin lesions from the Chinese data. The principal target organ for arsenic appears to be the skin. The nervous system and cardiovascular systems appear to be less significant target organs. Inorganic arsenic may be an essential nutrient, exerting beneficial effects on growth, health, and feed conversion efficiency (Underwood 1977).

A.V.10.3 Carcinogenicity

Inorganic arsenic is clearly a carcinogen in humans. Inhalation exposure is associated with increased risk of lung cancer in persons employed as smelter workers, in arsenical pesticide applicators, and in a population residing near a pesticide manufacturing plant (EPA 1994). Oral exposure to high levels in well water is associated with increased risk of skin cancer (Tseng 1977; EPA 1994). Extensive animal testing with various forms of arsenic given by many routes of exposure to several species, however, has not demonstrated the carcinogenicity of arsenic (International Agency for Research on

Cancer [IARC] 1980). The EPA (1993a) classifies inorganic arsenic in cancer weight-of-evidence Group A (human carcinogen), and recommends an oral unit risk of 0.00005 μg/L in drinking water, based on the incidence of skin cancer in the Tseng (1977) study. The EPA (1993a) notes that the uncertainties associated with the oral unit risk are considerably less than those for most carcinogens, so that the unit risk might be reduced an order of magnitude. An inhalation unit risk of 0.0043 per $\mu g/m^3$ was derived for inorganic arsenic from the incidence of lung cancer in occupationally exposed men (EPA 1994).

A.V.11 BARIUM

A.V.11.1 Noncancer Toxicity

Barium is a naturally occurring alkaline earth metal that comprises approximately 0.04 percent of the earth's crust (Reeves 1986a). Acute oral toxicity was manifested by GI upset, altered cardiac performance, and transient hypertension, convulsions, and muscular paralysis. Repeated oral exposures were associated with hypertension. Occupational exposure to insoluble barium sulfate induced benign pneumoconiosis (ACGIH 1991). The EPA (1993a) presented a verified chronic oral RfD of 0.07 mg/kg/day, based on an NOAEL of 0.21 mg/kg/day in a ten-week study in humans exposed to barium in drinking water and an uncertainty factor of 3. The EPA (1993b) presented the same value as a provisional RfD for subchronic oral exposure. A provisional chronic inhalation RfC of 0.0005 mg/m^3 and a provisional subchronic inhalation RfC of 0.005 were based on an NOEL for fetotoxicity in a four-month intermittent-exposure inhalation study in rats (EPA 1993b). Uncertainty factors of 1000 and 100 were used for the chronic and subchronic RfC values, respectively. The chronic and subchronic inhalation RfC values are equivalent to 0.0001 and 0.001 mg/kg/day, assuming a human inhalation rate of 20 m^3/day and body weight of 70 kg. Barium is principally a muscle toxin. Its targets are the GI system, skeletal muscle, the cardiovascular system, and the fetus.

A.V.11.2 Carcinogenicity

The EPA (1992f) classifies barium as a cancer weight-of-evidence Group D substance (not classifiable as to carcinogenicity in humans). Cancer risk is not estimated for Group D substances.

000892

A.V.12 BENZENE

A.V.12.1 Noncancer Toxicity

In humans, short-term inhalation exposure to benzene induced CNS effects such as drowsiness, dizziness, and headaches; long-term exposure induced anemia (ACGIH 1991). Oral dosing in animals induced hematopoietic effects (Agency for Toxic Substances and Disease Registry [ATSDR] 1989a). Neither oral nor inhalation RfD or RfC values were located for benzene. The CNS and the hematopoietic system are the target organs of benzene.

A.V.12.2 Carcinogenicity

The EPA (1993a) classifies benzene in cancer weight-of-evidence Group A (human carcinogen) based on several studies of increased risk of nonlymphocytic leukemia associated with occupational exposure, supported by an increased incidence of neoplasia in rats and mice exposed by inhalation and gavage. A verified oral slope factor of 0.029 per mg/kg/day and inhalation unit risk of 8.3E-06 $\mu g/m^3$ is based on the increased incidence of leukemia in several occupational (inhalation exposure) studies. The inhalation unit risk is equivalent to 0.029 per mg/kg/day, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans.

A.V.13 BENZO(B)FLUORANTNENE

A.V.9.1 Noncancer Toxicity

Little information is available on benzo(b)fluoranthene. However based on the similarities of chemical structures, most properties should be similar to benzo(a)pyrene.

A.V.9.1 Carcinogenicity

A Clement's relative potency factor (RFP) has been developed (Clement International, 1990) for benzo(b)fluoranthene which allows the estimation of CSFs of 9.0E-01 and 7.5E-01 mg/kg/day for the oral and inhalation routes respectively. The EPA (1993a) has classified benzo(b)fluoranthene in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on lung tumors in mice.

A.V.14 BENZOIC ACID

A.V.14.1 Noncancer Toxicity

There are no reports of toxicity in humans associated with ingestion of 0.9 to 34 mg benzoic acid/day, and the compound is classified as Generally Regarded as Safe (GRAS) by the U.S. Food and Drug Administration (FDA) (EPA 1994). Effects observed in oral studies in rats and mice were limited to decreased resistance to stress and reduced food and water intake accompanied by decreased growth rate. The EPA (1993a) presented a verified chronic oral RfD of 4 mg/kg/day, based on the upper range of daily intake estimated by the FDA and an uncertainty factor of 1. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. Data are inadequate to identify a target organ for the toxicity of benzoic acid.

A.V.14.2 Carcinogenicity

Cancer data consist of a lifetime drinking water study and a five-generation reproduction study in mice that showed no evidence of a carcinogenic effect. The EPA (1993a) classifies benzoic acid as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans). Quantitative risk estimates are not derived for Group D compounds.

A.V.15 BENZO(G,H,I)PERYLENE

A.V.15.1 Noncancer Toxicity

Little information is available on benzo(ghi)perylene. However based on the similarities of chemical structures, most properties should be similar to benzo(a)pyrene.

A.V.15.2 Carcinogenicity

The EPA (1993a) has classified benzo(ghi)perylene in cancer weight-of-evidence Group D (Not classifiable as to Human Carcinogenicity, inadequate or no evidence).

A.V.16 BENZO(K)FLUORANTHENE

A.V.16.1 Noncancer Toxicity

Little information is available on benzo(k)fluoranthene. However, based on the similarities of the chemical structures, most properties should be similar to benzo(a)pyrene.

A.V.16.2 Carcinogenicity

A Clement's relative potency factor (RFP) has been developed (Clement International, 1990) for benzo(k)fluoranthene which allows the estimation of 3.8E-01 and 3.2E-01 mg/kg/day for the CSF for the oral and inhalation route respectively. The EPA (1993a) has classified benzo(k)fluoranthene in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on lung tumors in mice.

A.V.17 BERYLLIUM

A.V.17.1 Noncancer Toxicity

Beryllium has a low order of toxicity when ingested because it is poorly absorbed from the GI tract (Reeves 1986b). Occupational exposure was associated with dermatitis, acute pneumonitis, and chronic pulmonary granulomatosis (berylliosis). Berylliosis was also observed in humans living in the vicinity of a beryllium plant. Similar pulmonary effects were observed in laboratory animals subjected to inhalation exposure. A verified chronic oral RfD value of 0.005 mg/kg/day was based on an NOAEL in a lifetime drinking water study in rats and an uncertainty factor of 100 (EPA 1994). The EPA (1992b) presented the same value as a provisional subchronic oral RfD. The target organ for inhalation exposure appears to be the lung; a target organ is not identified for oral exposure.

A.V.17.2 Carcinogenicity

The EPA (1993a) classifies beryllium in cancer weight-of-evidence Group B2 (probable human carcinogen) based on inadequate human (occupational) cancer data and sufficient animal data. A significant increase in lung tumors occurred in rats and in rhesus monkeys subjected to inhalation exposure or intratracheal instillation of a variety of beryllium compounds. Osteogenic sarcomas were induced in rabbits and mice, but not in rats or guinea pigs, injected intravenously with various beryllium compounds. Oral studies in animals yielded inconclusive results. The EPA (1993a) derived an oral slope factor of 4.3 per mg/kg/day from a statistically nonsignificant increase in total tumors in a lifetime drinking water study in rats. An inhalation unit risk of 0.0024 per $\mu g/m^3$, equivalent to 8.4 per mg/kg/day (assuming an inhalation rate of 20 m^3/day and body weight of 70 kg for humans), was derived from an occupational study.

A.V.18 BIS(2-ETHYLHEXYL)PHTHALATE (DI[2-ETHYLHEXYL]PHTHALATE)

A.V.18.1 Noncancer Toxicity

The acute oral toxicity of bis(2-ethylhexyl)phthalate is very low; oral $LD_{50/30}$ (lethal dose to 50 percent of population within 30 days without medical treatment) values in rats and mice were 33,800 and 26,300 mg/kg, respectively (ACGIH 1991). Repeated high-dose oral exposures were associated with decreased growth, altered organ weights, testicular degeneration, and developmental effects. The EPA (1993a) presented a verified chronic oral RfD of 0.02 mg/kg/day based on an LOAEL for increased relative liver weight in guinea pigs and an uncertainty factor of 1000. The EPA (1992b) adopted the chronic oral RfD as the provisional subchronic oral RfD. The principal target organs for the toxicity of bis(2-ethylhexyl)phthalate are the liver and testis.

A.V.18.2 Carcinogenicity

The EPA (1993a) classifies bis(2-ethylhexyl)phthalate in cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human cancer data (one limited occupational study) and sufficient cancer data in laboratory animals. An oral slope factor of 0.014 per mg/kg/day was based on the increased incidence of liver tumors in a dietary study in male mice.

A.V.19 BORON

A.V.19.1 Noncancer Toxicity

Acute exposure to boron compounds was associated with GI irritation and CNS depression (ACGIH 1991). Occupational exposure induced respiratory tract irritation. Several dietary and drinking water studies with boron (chemical form not specified) in dogs, rats, and mice identified testicular atrophy and impaired spermatogenesis as the critical effect of oral exposure (EPA 1994). Other effects included reduced body and organ weights, reduced ovulation in female rats, and possibly increased extramedullary hematopoiesis in the spleen. The EPA (1993a) presented a verified RfD of 0.09 mg/kg/day for chronic oral exposure to boron, based on an NOAEL in a two-year dietary study in dogs (form of boron not specified). An uncertainty factor of 100 was used. EPA (1993b) presents an inhalation RfC of 0.02 mg/m^3 based on respiratory effects in humans. This is equivalent to an RfD of 0.0057 mg/kg/day. The chronic oral RfD was adopted as the provisional subchronic oral RfD (EPA 1992b). The principal target organs of boron are the testis, respiratory mucosa, and CNS.

A.V.19.2 Carcinogenicity

Data were not located regarding the carcinogenicity of boron.

A.V.20 BROMODICHLOROMETHANE

A.V.20.1 Noncancer Toxicity

Chronic gavage treatment with bromodichloromethane induced histopathologic evidence of degeneration of the liver and kidney in rats and mice, and hyperplastic lesions of the thyroid in the mice (EPA 1994). The EPA (1993a) presented a verified chronic oral RfD of 0.02 mg/kg/day based on an NOAEL for kidney effects in mice and an uncertainty factor of 1000. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. The principal target organs of bromodichloromethane are the liver and kidney; the thyroid may be a target in mice.

A.V.20.2 Carcinogenicity

The EPA (1993a) classifies bromodichloromethane in cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human data and sufficient animal data. The human data consist of epidemiologic studies that associate chlorination of drinking water with increased risk of several different types of cancer. Bromodichloromethane is one of several trihalogenated methanes formed from the interaction of chlorine with organic matter in water. Animal studies associated treatment with several different tumor types in rats and mice. The EPA (1993a) presented a verified oral slope factor of 0.13 per mg/kg/day, based on the increased incidence of liver tumors in mice treated by gavage. An inhalation risk estimate was not derived.

A.V.21 2-BUTANONE (METHYL ETHYL KETONE)

A.V.21.1 Noncancer Toxicity

Toxicity data for oral exposure to 2-butanone were not located. The EPA (1993a) presented an RfD for chronic oral exposure of 0.60 mg/kg/day, based on the results of a 9-week feeding study in rats and an uncertainty factor of 3000. However, this RfD is currently under review by EPA and is subject to change. The subchronic oral RfD is 0.2 mg/kg/day, based on the chronic oral RfD and an uncertainty factor of 1000 (EPA 1993b).

Humans exposed to 2-butanone vapor reported slight nose and throat irritation (EPA 1994). The critical effect of inhalation exposure of animals to 2-butanone appears to be developmental toxicity. The EPA (1993a) presented a verified chronic inhalation RfC of 1 mg/m^3, equivalent to 0.3 mg/kg/day for a 70-kg human inhaling 20 m^3 of air/day, based on an NOAEL for developmental effects in mice and an uncertainty factor of 3000. The EPA (1992b) presented a provisional subchronic inhalation RfC of 3 mg/m^3, based on the 12-week study described in the previous paragraph, but mathematically derived by an obsolete methodology. A more defensible approach would be to adopt the chronic inhalation RfC of 1 mg/m^3 as being protective for subchronic exposure as well. The subchronic RfC of 1 mg/m^3 is equivalent to 0.3 mg/kg/day, as previously described.

Target organs for 2-butanone are the fetus, respiratory tract, and the CNS.

A.V.21.2 Carcinogenicity

EPA (1993a) classifies 2-butanone as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans). Quantitative risk estimates are not derived for Group D compounds.

A.V.22 CADMIUM

A.V.22.1 Pharmacokinetics

Estimates of cadmium uptake by the respiratory tract range from 10 to 50 percent; uptake is greatest for fumes and small particles and least for large dust particles (Friberg et al. 1986; Goyer 1991). GI absorption of ingested cadmium is ordinarily 5 to 8 percent, but may reach 20 percent in cases of serious dietary iron deficiency. Highest tissue levels are normally found in the kidneys followed by the liver, although levels in the liver may exceed those in the kidneys of persons suffering from cadmium-induced renal dysfunction. The half-life of cadmium in the kidneys and liver may be as long as 10-30 years. Fecal and urinary excretion of cadmium are approximately equivalent in normal humans exposed to small amounts. Urinary excretion increases markedly in humans with cadmium-induced renal disease.

A.V.22.2 Noncancer Toxicity

Acute inhalation exposure to fumes or particles of cadmium induces respiratory symptoms, general weakness, and, in severe cases, respiratory insufficiency, shock, and death (Friberg et al. 1986).

Acute oral exposure induces GI disturbances. Chronic inhalation exposure induces pulmonary emphysema, and chronic exposure by either route consistently produces renal tubular disease in humans and laboratory animals. Proteinuria is a reliable early indicator of cadmium-induced kidney disease. The combination of pulmonary emphysema and renal tubular disease, if severe, may result in early mortality. Painful osteomalacia and osteoporosis may arise from altered metabolism of bone minerals secondary to renal damage. The combination of renal and skeletal damage is called itai-itai disease in Japan. Cadmium exposure has been associated with liver damage, but the liver appears to be less sensitive than the kidney. The kidney is the primary target organ of cadmium toxicity. The EPA (1993a) derived chronic oral RfD values of 0.5 μg/kg/day for cadmium ingested in water and 1 μg/kg/day for cadmium ingested in food, based on a toxicokinetic model that predicted NOAELs from renal cortical concentrations of cadmium. The different RfD values reflect assumed differences in GI absorption of cadmium from water (5 percent) and food (2.5 percent).

A.V.22.3 Carcinogenicity

Carcinogenicity data in humans consist of several occupational studies that associate cadmium exposure with lung cancer, but concomitant exposure to other carcinogenic chemicals and smoking were not adequately controlled. Other occupational studies reported significantly increased risk of prostatic cancer, but this effect was not observed in the largest occupational study of workers exposed to high levels (Thun et al. 1985). The animal data consist of an inhalation study in rats that showed a significant increase in lung tumors, and several parenteral injection studies that produced injection site tumors. No evidence of carcinogenicity, however, was observed in seven oral studies in rats and mice. The EPA (1993a) classifies cadmium a cancer weight-of-evidence Group B1 substance for inhalation exposure on the basis of limited evidence of carcinogenicity in humans and sufficient evidence in animals. The data were insufficient to classify cadmium as carcinogenic to humans exposed by the oral route. The EPA (1993a) derived an inhalation unit risk of 0.0018 $\mu g/m^3$ from the occupational exposure study by Thun et al. (1985).

A.V.23 CARBAZOLE

A.V.23.1 Noncancer Toxicity

Carbazole is a poison by intraperitoneal route. It is moderately toxic by ingestion (Sax and Lewis, 1989).

A.V.23.2 Carcinogenicity

The EPA (1992b) has published a CSF of 2.0E-02 for the oral route of exposure. The EPA (1993a) has classified carbazole in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on liver tumors in mice.

A.V.24 CARBON DISULFIDE

A.V.24.1 Noncancer Toxicity

Carbon disulfide is a human poison by ingestion and possibly other routes. It is mildly toxic to humans by inhalation. It is an experimental poison by intraperitoneal route. The main toxic effect is on the central nervous system, acting as a narcotic and anesthetic in acute poisoning with death following from respiratory failure. In chronic poisoning the effect on the nervous system is one of central and peripheral damage which may be permanent if the damage has been severe (Sax and Lewis, 1989). Target organs are the CNS, PNS, CVS, eyes, kidneys, liver, and skin (NIOSH, 1990).

The EPA (1993a) has reported an RfD of 1.0E-01 mg/kg/day for the oral route of exposure using an uncertainty factor of 100. The EPA (1992b) has also reported a RfD of 2.86 E-03 mg/kg/day for the inhalation route based on calculation from a reference concentration using an uncertainty factor of 1000.

A.V.24.2 Carcinogenicity

Carbon disulfide is an experimental teratogen. Other experimental reproductive effects have been noted. Human reproductive effects on spermatogenesis by inhalation have been noted. Some human mutagenic data exists. (Sax and Lewis, 1989).

A.V.25 CARBON TETRACHLORIDE

A.V.25.1 Noncancer Toxicity

Carbon tetrachloride is a classic hepatotoxicant in humans and animals exposed by any route (ATSDR 1989b). High exposure levels also induced kidney effects in animals. Occupational exposure was associated with CNS and liver effects (ACGIH 1991). The EPA (1993a) presented a verified chronic

oral RfD of 0.0007 mg/kg/day based on an NOAEL for liver lesions in a 12-week gavage study in rats and an uncertainty factor of 1000. The EPA (1992b) presented a subchronic oral RfD of 0.007 mg/kg/day, based on the same NOAEL and an uncertainty factor of 100. The principal target organs for the toxicity of carbon tetrachloride are the liver and the CNS. The kidney is also a target in animals exposed to high levels.

A.V.25.2 Carcinogenicity

Carbon tetrachloride is classified in cancer weight-of-evidence Group B2 (probable human carcinogen), based on increased incidence of liver tumors in rats, mice, and hamsters treated orally or by subcutaneous injection (EPA 1994). A verified oral slope factor of 0.13 per mg/kg/day was based on liver tumor data from gavage studies in all three species previously mentioned. An inhalation unit risk of 1.5E-05 per $\mu g/m^3$, equivalent to 0.052 per mg/kg/day, was derived from the same data and an inhalation absorption factor of 0.4, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans.

A.V.26 CESIUM-137

Little or no information is available at this time for cesium-137; however, as information becomes available, it will be incorporated into future CRAREs. The EPA has derived slope factors and they are presented in Table A.4-1.

A.V.27 CHLOROBENZENE

A.V.27.1 Noncancer Toxicity

Oral exposure of animals to chlorobenzene induced liver effects (EPA 1994). Inhalation exposure of animals induced narcosis and other CNS effects as well as lung, liver, and kidney changes (ACGIH 1991). Minimal occupational exposure data indicated that chlorobenzene induces respiratory tract irritation and CNS effects (headache) in workers exposed to high levels. The EPA (1993a) presented a verified chronic oral RfD of 0.02 mg/kg/day, based on an NOAEL for liver lesions in a 13-week oral study in dogs and an uncertainty factor of 1000. The EPA (1992b) presented a provisional subchronic oral RfD of 0.2 mg/kg/day, based on the same NOAEL and an uncertainty factor of 100. A provisional chronic inhalation RfC of 0.02 mg/m^3 is based on an LOAEL for liver and kidney effects in rats exposed by inhalation for 120 days and an uncertainty factor of 10,000 (EPA 1992b). The provisional subchronic inhalation RfC, based on the same LOAEL and an uncertainty factor of

1000, is 0.2 mg/m^3. The chronic inhalation RfC value is equivalent to 0.006 mg/kg/day, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans. Target organs for the toxicity of chlorobenzene include the liver, CNS, lung, and kidney.

A.V.27.2 Carcinogenicity

Chlorobenzene is classified as an EPA cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity for humans), based on no available human cancer data and inadequate animal data (EPA 1994). Quantitative risk estimates are not derived for Group D compounds.

A.V.28 CHLOROFORM

A.V.28.1 Noncancer Toxicity

Oral or inhalation exposure of animals to chloroform was associated with liver and kidney damage (ACGIH 1991; EPA 1994). In humans, acute inhalation exposure to high levels induced narcosis, ventricular fibrillation, and death (ACGIH 1991). Limited occupational data associated chronic exposure to chloroform with CNS depression, digestive disturbances, and enlarged livers. The EPA (1993a) presented a verified chronic oral RfD of 0.01 mg/kg/day based on an LOAEL for fatty cyst formation in the livers of dogs treated orally for 7.5 years and an uncertainty factor of 1000. The same value was presented as a provisional subchronic oral RfD (EPA 1993b). Target organs for the toxicity of chloroform include the liver and kidney for oral and inhalation exposure, and the heart and CNS for inhalation exposure.

A.V.28.2 Carcinogenicity

Chloroform is classified as a cancer weight-of-evidence Group B2 compound (probable human carcinogen), based on increased incidence of several tumor types in rats and liver tumors in mice (EPA 1994). Human carcinogenicity data are inadequate. An oral slope factor of 0.0061 per mg/kg/day was derived from the incidence of kidney tumors in rats treated with chloroform in drinking water for two years. An inhalation unit risk of 2.3E-05 per μg/m^3 was based on the incidence of hepatocellular carcinomas in mice treated by gavage for 78 weeks. The inhalation unit risk is equivalent to 0.081 per mg/kg/day, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans.

A.V.29 CHLOROMETHANE

A.V.29.1 Noncancer Toxicity

Chloromethane is a natural and ubiquitous constituent of the oceans and atmosphere. It is a product of biomass combustion and is produced by wood rotting fungi. It has been detected in surface waters, drinking water, groundwater and soil. It is the dominant organochlorine species in the atmosphere. In water it is expected to volatilize rapidly with a half-life of $\geq$ 25 hours. In air it has a half life of about 1.5 years. In soil it is expected to volatilize from the surface but in a landfill will probably leach to groundwater.

Information regarding health effects of chloromethane in humans and animals is available only for the inhalation route of exposure. Before its use as a refrigerant declined about 30 or more years ago, many human deaths were reported as a result of exposure to chloromethane vapors from leaks from home refrigerators and industrial cooling and refrigeration systems. (ATSDR, 1989, draft).

A.V.29.2 Carcinogenicity

A retrospective epidemiology study of male workers exposed to chloromethane in a butyl rubber manufacturing plant produced no statistical evidence that the rates of deaths due to cancer at any sit were increased in the exposed population when compared with U. S. Mortality rates. (ATSDR, 1989, draft)

The EPA (1992b) has reported CSFs of 1.3E-02 and 6.3E-03 mg/kg/day for the oral and inhalation routes respectively.

A.V.30 4-CHLORO-3-METHYLPHENOL (P-CHLORO-M-CRESOL)

A.V.30.1 Noncancer Toxicity

Toxicologic data for 4-chloro-3-methylphenol were very limited. The oral lethal dose to 50 percent of the population ($LD_{50/30}$) in rats was determined to be 500 mg/kg (Sax 1984).

A.V.30.2 Carcinogenicity

Data were not located regarding the carcinogenicity of 4-chloro-3-methylphenol.

A.V.31 2-CHLOROPHENOL

A.V.31.1 Noncancer Toxicity

Little information was located regarding the noncancer toxicity of 2-chlorophenol. Oral $LD_{50/30}$ values ranged from 440 to 670 mg/kg (Sax 1984). The EPA (1993a) presented a verified chronic oral RfD of 0.005 mg/kg/day based on an NOAEL for reproductive effects in a subchronic drinking water study in rats and an uncertainty factor of 1000. The EPA (1992b) presented a provisional subchronic oral RfD of 0.05 mg/kg/day based on the same NOAEL and an uncertainty factor of 100. The fetus appears to be a target organ for the oral toxicity of 2-chlorophenol.

A.V.31.2 Carcinogenicity

Data were not located regarding the carcinogenicity of 2-chlorophenol.

A.V.32 4-CHLOROPHENYL PHENYL ETHER (4-CHLORODIPHENYL ETHER)

A.V.32.1 Noncancer Toxicity

The toxicity of the chlorinated phenyl ethers increases with the extent of chlorination (Kirwin and Sandmeyer 1981). The mono-, di-, and tri-chlorophenyl ethers do not present a serious hazard in the industrial setting. The most noteworthy effect of exposure to the more highly chlorinated phenyl ethers is acneform dermatitis, suggestive of the chloracne induced by dibenzo-p-dioxins, PCBs, and polychlorinated dibenzofurans (PCDFs), all of which are structurally similar to the chlorinated phenyl ethers.

For monochlorophenyl phenyl ether (position of the chlorine not specified), the smallest single oral dose that caused mortality in guinea pigs within 30 days of treatment was 600 mg/kg (Kirwin and Sandmeyer 1981). In repeated dose gavage studies in rabbits (5 days/week for 4 weeks), 100 mg/kg was without effect.

No reference doses have been established for this compound.

A.V.32.2 Carcinogenicity

Data were not located regarding the carcinogenicity of 4-chlorophenyl phenyl ether. 4-Bromophenyl phenyl ether, which is structurally very similar to 4-chlorophenyl phenyl ether, was negative in the Strain A mouse pulmonary tumor assay following intraperitoneal treatment (Theiss et al. 1977).

No cancer slope factors have been established for this compound.

A.V.33 3-CHLOROPROPENE (ALLYL CHLORIDE)

A.V.33.1 Noncancer Toxicity

The compound 3-chloropropene is more commonly known by its synonym, allyl chloride (EPA 1994). The compound was shown to induce peripheral neuropathy, manifested as motor and sensory deficits, in occupationally exposed humans (He et al. 1980, 1985). Exposure concentrations were not sufficiently quantified to locate thresholds for these effects. An earlier study associated occupational exposure with liver damage (Hausler and Lenich 1968), but the study was flawed and could not be properly evaluated. It does not appear that neurological endpoints were examined in this study.

Clinical, electromyographic, and histopathologic evidence of peripheral neuropathy were observed in rabbits and a cat intermittently exposed to 3-chloropropene in air for ≥ 3 months (Boquin et al. 1982). Rats, guinea pigs, and rabbits exposed via inhalation also developed degenerative lesions in the kidneys (Quast et al. 1982; Torkelson et al. 1959). Rabbits and mice treated by subcutaneous and oral dosing, respectively, also showed neurologic and kidney effects. It is unclear whether exposure to 3-chloropropene induces liver effects in animals.

Currently, the existing toxicological data base for this compound is insufficient for the estimation of reference doses or concentrations.

A.V.33.2 Carcinogenicity

Cancer data include an increased incidence of squamous cell papillomas and carcinomas in mice in an inadequate gavage study in rats and mice (National Cancer Institute [NCI] 1978b), an increase in lung tumor multiplicity in strain A/St mice treated by intraperitoneal injection (Theiss et al. 1979), and tumor initiation in the two-stage skin-painting test in mice (Van Duuren et al. 1979). On the basis of these data, EPA (1993a) classifies 3-chloropropene as a cancer weight-of-evidence Group C

compound (possible human carcinogen). The data were inadequate for quantitative estimation of carcinogenic potency.

A.V.34 CHROMIUM

A.V.34.1 Noncancer Toxicity

In nature, chromium (III) predominates over chromium (VI) (Langård and Norseth 1986). Little chromium (VI) exists in biological materials, except shortly after exposure, because reduction to chromium (III) occurs rapidly. Chromium (III) is considered a nutritionally essential trace element and is considerably less toxic than chromium (VI). No effects were observed in rats consuming 1800 mg chromium (III)/kg/day in the diet for over two years (EPA 1994). The NOEL of 1800 mg/kg/day and an uncertainty factor of 1000 was the basis for a verified chronic oral RfD of 1 mg/kg/day (EPA 1994). The same NOEL and an uncertainty factor of 100 was the basis for a provisional subchronic oral RfD of 10 mg/kg/day (EPA 1994).

Acute oral exposure of humans to high doses of chromium (VI) induced neurological effects, GI hemorrhage and fluid loss, and kidney and liver effects. Parenteral dosing of animals with chromium (VI) is selectively toxic to the kidney tubules. An NOAEL of 2.4 mg chromium (VI)/kg/day in a one-year drinking water study in rats and an uncertainty factor of 500 was the basis of a verified RfD of 0.005 mg/kg/day for chronic oral exposure (EPA 1994). The same NOAEL and an uncertainty factor of 100 was the basis of a provisional subchronic oral RfD of 0.02 mg/kg/day (EPA 1994).

Occupational (inhalation and dermal) exposure to chromium (III) compounds induced dermatitis (ACGIH 1991). Similar exposure to chromium (VI) induced ulcerative and allergic contact dermatitis, irritation of the upper respiratory tract including ulceration of the mucosa and perforation of the nasal septum, and possibly kidney effects. Inhalation RfC values were not located.

A target organ was not identified for chromium (III). The kidney appears to be the principal target organ for repeated oral dosing with chromium (VI). Additional target organs for dermal and inhalation exposure include the skin and respiratory tract.

A.V.34.2 Carcinogenicity

Data were not located regarding the carcinogenicity of chromium (III). The EPA (1993a) classifies chromium (VI) in cancer weight-of-evidence Group A (human carcinogen), based on the consistent observation of increased risk of lung cancer in occupational studies of workers in chromate production or the chrome pigment industry. Parenteral dosing of animals with chromium (VI) compounds consistently induced injection-site tumors. There is no evidence that oral exposure to chromium (VI) induces cancer. An inhalation unit risk of 0.012 per $\mu g/m^3$, equivalent to 41 per mg/kg/day, assuming humans inhale 20 m^3/day and weigh 70 kg, was based on increased risk of lung cancer deaths in chromate production workers.

A.V.35 CHRYSENE

A.V.35.1 Noncancer Toxicity

Chrysene is absorbed by the oral route of exposure. Absorption may also occur following dermal exposure. Data are not available to determine whether chrysene is absorbed via the lungs. Absorbed chrysene is distributed to several tissues, i.e. it was found in a all five tissues in a study reported in 1983. It is accumulated preferentially in the adipose and mammary tissue.

There is no information on other toxic effects of chrysene in human and laboratory animals following inhalation, oral and dermal exposures. (ATSDR 1987, draft).

A.V.35.2 Carcinogenicity

A Clement's relative potency factor (RFP) has been developed for chrysene. This allows the estimation of CSFs of 3.2E-02 and 2.7E-02 mg/kg/day for the oral and inhalation routes respectively. The EPA (1993a) has classified chrysene in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on tumors and malignant lymphoma in mice and chromosomal abnormalities in hamsters.

A.V.36 CHLORDANE

Technical chlordane is a mixture of at least 50 related compounds (ATSDR 1989c). The principal components of the mixture are cis- and trans-chlordane, heptachlor, cis- and trans-nonachlor, and alpha-, beta- and gamma-chlordene. Each component has its own environmental fate and transport

kinetics, so it is unlikely that the chlordane identified at the site would have the same chemical composition as technical chlordane. It is unclear which chlordane component(s) were found at the site.

A.V.36.1 Pharmacokinetics

Kinetic studies in rats, in which the area under the curve was compared following intravenous and oral dosing, indicate that approximately 80 percent of an oral dose of trans-chlordane is absorbed from the GI tract (Ohno et al. 1986). In animals, absorbed chlordane is distributed most rapidly to the liver and kidneys, probably because of the extensive vascularity of these organs (Ohno et al. 1986), followed by redistribution to adipose tissue (Barnett and Dorough 1974). In humans, levels of chlordane residues in adipose tissue increase with increasing duration of exposure (ATSDR 1989c). Metabolism involves principally oxidation, dechlorination, and conjugation, yielding lipophilic products that accumulate in adipose tissue as well as more polar products that are excreted. Chlordane residues are excreted principally through the bile, although considerable species differences occur. Lactation is an important mechanism of excretion of chlordane residues retained in body fat.

A.V.36.2 Noncancer Toxicity

An acute oral lethal dose of chlordane in humans is estimated to be 25 to 50 mg/kg (ATSDR 1989c). Symptoms of acute oral or inhalation intoxication in humans consistently include GI disturbances such as vomiting, cramps, and diarrhea, and neurological effects including headache, irritability, dizziness, incoordination, convulsions, and coma. Data were not located regarding symptoms or effects in humans chronically exposed by the oral route, and no noncancer effects were observed in several studies of occupationally exposed humans. Mild liver lesions were observed in chronic oral studies in rats and mice. Prenatal or early postnatal exposure of mice to chlordane damages the developing immune system and nervous system. Target organs of chlordane include the liver, nervous system, and the fetus and neonate.

The EPA (1993a) derived an RfD of 0.06 μg/kg/day for chronic oral exposure to chlordane, based on an NOEL of 0.055 mg/kg/day for liver effects in a 30-month dietary study in rats (Velsicol Chemical Co., 1983). An uncertainty factor of 1000 was applied; factors of 10 each for inter- and intraspecies variation, and to reflect deficiencies in the database.

A.V.36.3 Carcinogenicity

The EPA (1993a) classifies chlordane in cancer weight-of-evidence Group B2, based on inadequate evidence in humans and sufficient evidence in animals. The human data consist of several epidemiologic studies of chlordane manufacturing workers and pesticide applicators. The only indication of a carcinogenic effect was a borderline significantly increased incidence of bladder cancer in one study of pesticide applicators, but chlordane exposure was not quantified and the workers were concomitantly exposed to other carcinogenic pesticides. The animal data consist of several studies in which oral exposure induced a dose-related increase in the incidence of liver tumors. The evidence for carcinogenicity in rats is equivocal. The EPA (1993a) derived an oral slope factor of 1.3 per mg/kg/day and an inhalation unit risk of 0.00037 per $\mu g/m^3$ based on liver tumor incidence in two dietary studies in mice.

A.V.37 COBALT

A.V.37.1 Noncancer Toxicity

Acute high oral or parenteral doses of cobalt in humans or animals induced myocardial degeneration often leading to mortality, erythropoiesis, enlarged thyroid, and, in animals, renal tubular degeneration (Elinder and Friberg 1986b). Chronic ingestion from the consumption of beer containing high concentrations of cobalt was associated with "beer-drinkers cardiomyopathy," which includes polycythemia and goiter, as well as marked myocardial degeneration and mortality. The therapeutic use of 0.16 to 0.32 mg cobalt/kg/day in anemic, anephric dialysis patients for 12 to 32 weeks induced a significant, but reversible, rise in blood hemoglobin concentration (EPA 1992g).

Occupational (inhalation and dermal) exposure was associated with allergic dermatitis, chronic interstitial pneumonitis, reversibly impaired lung function, occupational asthma, and myocardial effects (ACGIH 1991). Cobalt was determined to be the etiologic factor in hard metal disease, the syndrome of respiratory symptoms, and pneumoconiosis associated with inhalation exposure to dusts containing tungsten carbide with cobalt powder as a binder (Elinder and Friberg 1986b). The lowest occupational air concentration of cobalt associated with hard metal disease was 0.003 mg cobalt/m^3 (Sprince et al. 1988). It should be noted that the workers were also exposed to tungsten and sometimes to titanium, tantalum, and niobium (Elinder and Friberg 1986b). Similar lung effects were seen in animals exposed to cobalt by inhalation.

The developmental toxicity of cobalt was tested in rodents treated orally with cobalt chloride (EPA 1992g). Maternal effects (unspecified) were reported in rats treated with 5.4 to 21.8 mg cobalt/kg/day from gestation day 14 through lactation day 21. Effects on the offspring included stunted growth at 5.4 mg cobalt/kg/day and reduced survival at 21.8 mg cobalt/kg/day. In rats treated with 6.2, 12.4, or 24.8 mg cobalt/kg/day on gestation days 6 through 15, maternal effects included reduced food consumption and body weight gain and altered hematologic parameters, although it is unclear at what dose level(s) these effects occurred. There were no effects on fetal survival, although a nonsignificant increase in fetal stunting was observed in rats treated with ≥ 12.4 mg cobalt/kg/day. Mice treated with 81.7 mg cobalt/kg/day had reduced maternal weight gain, but no fetal effects.

Several studies reported testicular degeneration and atrophy in rats treated with cobalt chloride in the diet or drinking water at concentrations equivalent to doses of 5.7 to 30.2 mg cobalt/kg/day (EPA 1992g).

Cobalt is nutritionally essential as a cofactor in cyanocobalamin (vitamin B12) (EPA 1992g). Cobalt is universally present in the diet. Average daily adult dietary intakes of cobalt range from 0.16 to 0.58 mg/day (0.002 to 0.008 mg/kg/day, assuming adults weigh 70 kg) (Tipton et al. 1966; Schroeder et al. 1967). In 9- to 12-year-old children, dietary intakes of cobalt range from 0.3 to 1.77 mg/day (Murthy et al. 1971; National Research Council 1989). Assuming an average weight for children in this age range of 28 kg (National Research Council, 1989), the dietary intakes are equivalent to 0.01 to 0.06 mg/kg/day.

The EPA (1992g) concluded that the oral toxicity data were insufficient for derivation of an oral RfD for cobalt. The relatively well characterized dietary intake data, however, can provide useful guidance. The EPA (1992g) noted that the upper range of dietary intake for children, 0.06 mg/kg/day, was below the level associated with enhanced erythropoiesis in anephric patients. Therefore, the upper range of dietary intake, 0.06 mg cobalt/kg/day, can be considered a guidance level for the oral intake of cobalt and can be used in place of an oral RfD in CERCLA and RCRA baseline risk assessments.

The EPA (1990b) derived an interim inhalation RfC from the LOAEL of 0.003 mg cobalt/m^3 associated with hard metal disease in occupationally exposed humans (Sprince et al. 1988).

Correcting for intermittent occupational exposure (10 m^3 of air inhaled per work day/20 m^3 of air inhaled per day x 5 work days per week/7 days per week) yielded an adjusted LOAEL of 0.001 mg/m^3. Application of an uncertainty factor of 1000 resulted in an interim chronic inhalation RfC of 1E-06 mg/m^3. Assuming humans inhale 20 m^3 of air/day and weigh 70 kg, the RfC is equivalent to 2.9E-07 mg/kg/day, rounded to 3E-07 mg/kg/day.

Important target organs in orally exposed humans are the heart, erythrocyte, and thyroid. Target organs for occupational exposure are the skin, lungs, and heart.

A.V.37.2 Carcinogenicity

Data regarding the carcinogenicity of cobalt were not located.

A.V.38 COPPER

A.V.38.1 Noncancer Toxicity

Copper is a nutritionally essential element that functions as a cofactor in several enzyme systems (Aaseth and Norseth 1986). Acute exposure to large oral doses of copper salts was associated with GI disturbances, hemolysis, and liver and kidney lesions. Chronic oral toxicity in humans has not been reported. Chronic oral exposure of animals was associated with an iron-deficiency type of anemia, hemolysis, and lesions in the liver and kidneys. Occupational exposure may induce metal fume fever, and, in cases of chronic exposure to high levels, hemolysis and anemia (ACGIH 1991). Neither oral nor inhalation RfD or RfC values were located for copper. The target organs for copper are the erythrocyte, liver, and kidney, and, for inhalation exposure, the lung.

A.V.38.2 Carcinogenicity

Copper is classified in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans) (EPA 1994). Quantitative risk estimates are not derived for Group D chemicals.

A.V.39 CYANIDE

A.V.39.1 Noncancer Toxicity

Acute exposure to cyanide induced histotoxic hypoxia (inability of the tissues to use oxygen); death was due to central respiratory arrest (Smith 1991). Chronic dietary exposure to cyanide was

associated with reduced body weight gain, decreased thyroid activity, myelin degeneration, and reduced fertility in rats (EPA 1994). The EPA (1993a) presented a verified RfD of 0.02 mg/kg/day for oral exposure to cyanide, based on an NOAEL in a two-year study in rats that consumed food fumigated with hydrogen cyanide, and an uncertainty factor of 500. The same value was adopted as the provisional RfD for subchronic oral exposure (EPA 1992b). The target organs for acute exposure are the CNS, respiratory system, and cardiovascular system (ACGIH 1991). Target organs for chronic oral exposure to cyanide appear to be the thyroid and nervous system.

A.V.39.2 Carcinogenicity

The EPA (1993a) classifies cyanide as a cancer weight-of-evidence Group D substance (not classifiable as to carcinogenicity to humans). Quantitative risk estimates are not derived for Group D chemicals.

A.V.40 DDT (4,4'-DICHLORODIPHENYL-TRICHLOROETHANE)

A.V.40.1 Pharmacokinetics

Dichlorodiphenyltrichlorothane (DDT) is readily absorbed when dissolved in oils, fats, or lipid solvents, but is poorly absorbed as dry powder or aqueous suspension. Once absorbed, DDT concentrates in adipose tissue. Storage in fat is protective because it decreases the amount of chemicals at the site of toxic action, the brain. At a constant rate of intake, concentrations in adipose tissue reach a steady state and remain relatively constant. When exposure ceases, DDT is slowly eliminated. The rate of elimination is estimated to be 1 percent of stored DDT excreted per day (Gartrell 1985).

After absorption in mammals, DDT degrades by dehydrochlorination to unsaturated DDE and by substitution of hydrogen for one chlorine atom yielding DDD. DDD is further metabolized through a series of intermediates yielding DDA. DDA is relatively water soluble and excreted primarily in the urine. Ingestion studies of DDT administered to volunteers demonstrated that within 24 hours, urinary DDA excretion increased detectably. Excretion of DDT as DDA appeared to be totally dependent on preferential reductive dechlorination of DDT to DDD (rather than DDE) and then to DDA (Clayton 1981).

A.V.40.2 NoncancerToxicity

The CNS is an important target organ in humans acutely exposed to DDT. Symptoms include altered sensory perception, headache, nausea, disequilibrium, confusion, tremors, and convulsions (Hayes 1982; ATSDR 1989d). Tremors and hyperirritability were observed in chronically exposed animals (NCI 1978c; Rossi et al. 1977). The liver appears to be the other important target organ, at least in animals. Liver effects include enzyme induction, increased liver weight, increased serum levels of liver enzymes, hepatocellular hypertrophy, and necrosis (ATSDR 1989d). The EPA (1993a) derived an RfD of 0.5 μg/kg/day for chronic oral exposure from an NOEL of 0.05 mg/kg/day for liver effects in a 15- to 27-week feeding study in rats (Laug et al. 1950). An uncertainty factor of 100 was applied with factors of 10 each for inter- and intraspecies variation.

Dermal exposure has been associated with no illness and usually no irritation. Subcutaneous injection of colloidal suspensions of DDT in saline up to 30 ppm caused no irritation. Studies of DDT-impregnated clothing have found it to cause no irritation (Hayes 1982). The earliest symptom of acute DDT poisoning is paresthesia of the mouth and lower part of the face. This is followed by paresthesia of same areas and of the tongue and then dizziness, and tremors of extremities, confusion, malaise, headache, fatigue, and delayed vomiting. Vomiting is probably of central origin and not due to local irritation. Convulsions occur only in severe poisoning. Onset may be as soon as 30 minutes after ingestion of a large dose or as late as six hours after smaller but still-toxic doses. Recovery from mild poisoning usually is essentially complete in 24 hours, but recovery from severe poisoning requires several days (Hayes 1982).

There is no documented evidence that dietary absorption of DDT, alone or in combination with insecticides of the aldrin-toxaphene group, has caused cancer in the general population. No evidence has been presented that DDT has caused cancer among the millions of individuals (almost entirely men) who have been handling or spraying DDT (as dust, solution, and suspension) in all parts of the world and under all possible climatic conditions.

DDT is a mixture of p,p'-DDT and related compounds. One of the more important of the DDT isomers is o,p'-DDT. These agents have prominent estrogenic effects that have been well-characterized in a number of assay systems (Johnson, et al. 1988). The estrogenicity of DDT has lead to the supposition that it may adversely affect reproductive outcome by causing birth defects, increasing pregnancy complications, or affecting fertility (RTC 1990).

A verified chronic oral RfD value of 0.0005 mg/kg/day (EPA 1993) was based on a NOEL of 0.05 mg/kg/day in a 27-week rat feeding study and on an uncertainty factor of 100.

A.V.40.3 Carcinogenicity

The EPA (1993a) has classified DDT in cancer weight-of-evidence Group B 2 (probable human carcinogen) based on the observation of tumors (generally of the liver) in seven studies in various mouse strains and in three studies in rats. The EPA (1993a) derived an oral slope factor of 3.4×10^{-1} per mg/kg/day from liver tumors in oral (diet) studies in the mouse and the rat. An inhalation unit risk of 9.7×10^{-5} per mg/m^3, equivalent to 0.34 per mg/kg/day (assuming a 70 kg adult inhales 20 m^3 of air/day), was derived from the same oral (diet) studies.

A.V.41 DICHLOROBENZENE (DCB) (Clement, 1985)

A.V.41.1 Health Effects

It is generally thought that the available data are inadequate for assessing the carcinogenic potential of DCB in animals and humans. One case study suggests an association between exposure to dichlorobenzene and several cases of leukemia. DCB is reported to be nonmutagenic in Salmonella typhimurium tester strains. Mutagenic and clastogenic activity reportedly occurs in some plant test systems. No data are available for evaluating the teratogenic or reproductive effects in animals or humans.

Symptoms of acute inhalation intoxication in humans include headache, nausea, and throat irritation. DCB is also a skin and eye irritant.

A variety of other symptoms, including weakness, fatigue, and anemia, have been observed after chronic dermal and inhalation exposure to dichlorobenzene.

Inhalation of DCB causes eye and upper respiratory tract irritation, central nervous system depression, and liver and kidney damage in experimental animals. An LC_{20} of approximately 4,900 mg/m^3/7 hours is reported for the rat. No toxic effects were observed after daily 7-hour inhalation exposures of up to 560 mg/m^3 for as much as 7 months in several species of experimental animals. Hepatic porphyria is reported to occur in rats after daily tracheal intubation of 455 mg/m^3 for up to 15 days. Oral exposure results in stimulation of liver microsomal enzyme systems and cumulative

toxicity. The oral LD_{50} for the rat is 500 mg/kg. Chronic oral exposure to 188 mg/kg/day causes liver and kidney damage in rats. Exposure to 0.01-0.1 mg/kg/day produces changes in the hematopoietic system, increased prothrombin time, and altered conditioned reflexes and enzyme activities in chronically exposed rats. In general, toxicity increases in the order 1, 4-DCB, 1,3-DCB,1,2-DCB.

A.V.42 DIBENZOFURANS

A.V.42.1 Noncancer Toxicity

Although data associated the PCDFs with chloracne and other effects in humans (ATSDR 1992), data were not located regarding the oral or inhalation toxicity of unsubstituted dibenzofuran. Neither oral nor inhalation RfD or RfC values for dibenzofuran were located. Target organs for dibenzofuran have not been identified.

A.V.42.2 Carcinogenicity

Although data associated the PCDFs with cancer in humans (ATSDR 1992), data were not located regarding the carcinogenicity of unsubstituted dibenzofuran. The EPA (1993a) classifies dibenzofuran a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans) because of the lack of data. Cancer risks are not estimated for Group D compounds.

A.V.43 DIBENZO-P-DIOXINS

Specific congeners and homologues of these classes of interest at this site include 1,2,3,4,6,7,8-heptachlorodibenzofuran and -heptachlorodibenzo-p-dioxin; 1,2,3,4,7,8,9-heptachlorodibenzofuran and -heptachlorodibenzo-p-dioxin; 1,2,3,4,7,8-hexachlorodibenzofuran and -hexachloro-dibenzo-p-dioxin; 1,2,3,6,7,8- and 2,3,4,6,7,8-hexachlorodibenzofuran; 1,2,3,7,8,9-hexachloro-dibenzofuran and -hexachlorodibenzo-p-dioxin; 1,2,3,6,7,8-hexachlorodibenzo-p-dioxin; unspecified hexachlorodibenzofurans and dibenzo-p-dioxins; 1,2,3,7,8- and 2,3,4,7,8-pentachlorodibenzofuran; unspecified pentachlorodibenzofurans; 2,3,7,8-tetrachlorodibenzofuran; and unspecified tetrachlorodibenzofurans.

A.V.43.1 Noncancer Toxicity

Of the members of these classes, the toxicity of 2,3,7,8-TCDD has been studied most extensively. The only effect in humans clearly attributable to 2,3,7,8-TCDD was chloracne (ATSDR 1989e). The

data, however, also associated exposure to 2,3,7,8-TCDD with hepatotoxicity and neurotoxicity in humans. In animals, toxicity of 2,3,7,8-TCDD is most commonly manifested as a wasting syndrome with thymic atrophy, terminating in death, with a large number of organ systems showing nonspecific effects. Chronic treatment of animals with 2,3,7,8-TCDD or a mixture of two isomers of hexachlorodibenzo-p-dioxin resulted in liver damage. Immunologic effects may be among the more sensitive endpoints of exposure to the PCDDs in animals. In animals 2,3,7,8-TCDD is a developmental and reproductive toxicant. No verified or provisional noncancer toxicity values were located for any of the chemicals of interest in these classes (EPA 1994, 1992b).

A.V.43.2 Carcinogenicity

Data regarding the carcinogenicity of 2,3,7,8-TCDD to humans, obtained from epidemiologic studies of workers exposed to pesticides or to other chlorinated chemicals known to be contaminated with 2,3,7,8-TCDD, are conflicting (ATSDR 1989e). The interpretation of these studies is not clear because exposure to 2,3,7,8-TCDD was not quantified, multiple routes of exposure (dermal, inhalation, oral) were involved, and the workers were exposed to other potentially carcinogenic compounds. In animals, however, 2,3,7,8-TCDD is clearly carcinogenic, inducing thyroid, lung, and liver tumors in orally treated rats and mice (EPA 1985). Similarly, oral treatment with a mixture of two hexachlorodibenzo-p-dioxin isomers induced liver tumors in rats and mice. On the basis of the animal data, 2,3,7,8-TCDD and the hexachlorodibenzo-p-dioxins were assigned to EPA cancer weight-of-evidence Group B2 (probable human carcinogen). Although the other PCDDs and PCDFs were not formally classified as to carcinogenicity to humans, for regulatory purposes they are treated as probable human carcinogens.

The EPA (1993b) presents provisional oral and inhalation slope factors for 2,3,7,8-TCDD of 150,000 per mg/kg/day, based on the incidence of liver and lung tumors in an oral study in rats (Kociba et al. 1978).

Much less is known about the toxicity of other CDD and CDF congeners. Based on available toxicity data, EPA has developed a method for expressing toxicities of these compounds in terms of equivalent amounts of 2,3,7,8-TCDD. "Toxicity equivalency factors", or TEFs, are used to convert the concentration of a given CDD/CDF into an equivalent concentration of 2,3,7,8-TCDD. The TEF approach has been applied in the risk assessment of dioxins and furans for Operable Unit 5. Table D.4-4 presents the TEFs developed by EPA (1990d).

A.V.44 DI-N-BUTYLPHTHALATE (DIBUTYLPHTHALATE)

A.V.44.1 Noncancer Toxicity

The oral and inhalation toxicities of di-n-butylphthalate appear to be quite low (ACGIH 1991). Oral doses of 2000 mg/kg/day for 10 days induced testicular degeneration in mice and guinea pigs, but not in rats or hamsters. A one-year dietary study with di-n-butylphthalate resulted in mortality of half the rats within the first week; no adverse effects were observed in the survivors (EPA 1994). A verified chronic oral RfD of 0.1 mg/kg/day was derived from the NOAEL in the one-year rat study and an uncertainty factor of 1000. The same NOAEL and an uncertainty factor of 100 were the basis of a provisional subchronic oral RfD of 1 mg/kg/day (EPA 1992b). The testis appears to be a target organ for oral exposure in some species.

A.V.44.2 Carcinogenicity

The EPA (1993a) classifies di-n-butylphthalate in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans), based on an absence of human or animal cancer data. Quantitative risk estimates are not derived for Group D chemicals.

A.V.45 3,3'-DICHLOROBENZIDINE

A.V.45.1 Noncancer Toxicity

The oral toxicity of 3,3'-dichlorobenzidine appears to be low. The oral $LD_{50/30}$ in rats is 7000 mg/kg, and 9 of 14 rats survived gavage treatment with 700 mg/kg for >288 days (ACGIH 1991). The EPA (1993a) reviewed the available inhalation data and concluded that the data were insufficient for derivation of an RfC for chronic inhalation exposure.

A.V.45.2 Carcinogenicity

Epidemiology studies failed to implicate 3,3'-dichlorobenzidine as a human carcinogen (Gadian 1975; Gerarde and Gerarde 1974; MacIntyre 1975), but several flaws in these studies seriously compromised their sensitivity (EPA 1994). 3,3'-Dichlorobenzidine was associated with tumors in several sites in rats, in the liver and urinary bladder in dogs, in the liver in mice, and in the urinary bladder in hamsters (Osanai 1976; Safiotti et al. 1967; Stula et al. 1975, 1978). The EPA (1993a) classified 3,3'-dichlorobenzidine as a cancer weight-of-evidence Group B2 compound, and derived a

slope factor for oral exposure of 0.45 per mg/kg/day, based on the incidence of mammary adenocarcinomas in female rats (Stula et al. 1975).

A.V.46 DICHLORODIFLUOROMETHANE

A.V.46.1 Noncancer Toxicity

Oral exposure to dichlorodifluoromethane induces a low order of toxicity. In a two-year study, 150 mg/kg/day decreased the rate of body weight gain in female rats; no effects were observed in rats receiving 15 mg/kg/day (Sherman 1974). The method of oral dosing (diet or gavage) was unclear. No clinical signs, organ weight effects, or histopathologic alterations were observed in rats treated with 430 mg/kg/day for 10 days or in dogs treated with 90 mg/kg/day for 90 days (Clayton 1967). The EPA (1993a) derived an RfD of 0.2 mg/kg/day for chronic oral exposure from the NOEL of 15 mg/kg/day in the two-year rat study. An uncertainty factor of 100 was applied with factors of 10 each for inter- and intraspecies variation. Inhalation studies (6 weeks) on guinea pigs using alternate testing methods, which are not consistent with methologies used by the RfD/RfC Work Group, resulted in an RfC of 0.2. This RfC is associated with an uncertainty factor of 10,000 and is equivalent to an RfD of 0.057 mg/kg/day (EPA, 1993b).

A.V.46.2 Carcinogenicity

Data were not located in EPA (1993a) regarding the carcinogenicity of dichlorodifluoromethane.

A.V.47 1,1-DICHLOROETHANE

A.V.47.1 Noncancer Toxicity

CNS depression was the critical effect of oral or inhalation exposure of animals to 1,1-dichloroethane (ACGIH 1991). Kidney damage was observed in cats, but not laboratory rodents, exposed by inhalation. Inhalation exposure of humans was associated with CNS depression and respiratory tract and ocular irritation. The EPA (1993b) presented a provisional chronic oral RfD of 0.1 mg/kg/day based on an NOEL in a 13-week intermittent exposure inhalation study in rats and an uncertainty factor of 1000. A provisional subchronic oral RfD of 1 mg/kg/day was based on the same NOEL and an uncertainty factor of 100. The EPA (1992b) presented a provisional chronic inhalation RfC of 0.5 mg/m^3 based on an NOEL for kidney damage in cats exposed by inhalation to 1,1-dichloroethane and an uncertainty factor of 1000. A provisional subchronic inhalation RfC of 5 mg/m^3 was based on

the same NOEL and an uncertainty factor of 100. The chronic and subchronic inhalation RfC values are equivalent to 0.1 and 1 mg/kg/day, respectively, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans. Target organs for the toxicity of 1,1-dichloroethane are the CNS and kidney (in the cat) for oral exposure, and the CNS and respiratory and ocular mucosa for inhalation exposure.

A.V.47.2 Carcinogenicity

EPA classifies 1,1-dichloroethane as a cancer weight-of-evidence Group C compound (possible human carcinogen), based on no human cancer data and limited evidence of carcinogenicity in animals (EPA 1994). The data were considered to be inadequate for quantitative cancer baseline risk assessment.

A.V.48 1,2-DICHLOROETHANE

A.V.48.1 Noncancer Toxicity

Oral or inhalation exposure of humans or laboratory animals to 1,2-dichloroethane induced liver and kidney effects (ACGIH 1991). Inhalation exposure also induced pulmonary congestion or edema, and, in humans, CNS depression. Neither oral nor inhalation RfD or RfC values were located. The target organs for 1,2-dichloroethane toxicity are the liver, kidney, lung, and CNS.

A.V.48.2 Carcinogenicity

EPA classifies 1,2-dichloroethane as a cancer weight-of-evidence Group B2 compound (probable human carcinogen), based on the induction of several tumor types in rats and mice treated by gavage, and on the induction of benign lung papillomas in mice after dermal application (EPA 1994). The EPA (1993a) presented a slope factor for oral exposure of 0.091 per mg/kg/day, and a unit risk for inhalation exposure of 2.6E-05 per $\mu g/m^3$, based on the incidence of vascular system hemangiosarcomas in male rats in the gavage study. The inhalation unit risk is equivalent to 0.091 per mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg.

A.V.49 1,1-DICHLOROETHENE

A.V.49.1 Noncancer Toxicity

Chronic oral exposure of laboratory animals to 1,1-dichloroethene induced liver effects (EPA 1994). In animals, inhalation exposure induced degenerative changes in the liver and kidneys (ATSDR

1989f). No health effects were observed in a limited study of 138 exposed workers (ACGIH 1986). The EPA (1993a) presented a verified RfD for chronic oral exposure of 0.009 mg/kg/day, based on an NOAEL for liver effects in a chronic drinking water study in rats and an uncertainty factor of 1000. The EPA (1993b) presented the same value as a provisional subchronic oral RfD. The liver and kidneys are the target organs for exposure to 1,1-dichloroethene.

A.V.49.2 Carcinogenicity

EPA classifies 1,1-dichloroethene as a cancer weight-of-evidence Group C compound (possible human carcinogen), based on an inadequate occupational exposure cancer study, limited data in several animal studies, its mutagenicity and ability to alkylate deoxyribonucleic acid (DNA), and its structural similarity to vinyl chloride, a known human carcinogen (EPA 1994). The eighteen available animal studies (11 by inhalation exposure, 5 by oral exposure, and 1 each by dermal application and subcutaneous injection) were limited in sensitivity by various deficiencies in design. Credible evidence that 1,1-dichloroethene was a complete carcinogen was provided only by one 12-month inhalation study in mice, in which the incidence of kidney adenocarcinomas was significantly greater in the high-dose males than in the control males. A slope factor of 0.6 per mg/kg/day for oral exposure was based on the increased incidence of adrenal pheochromocytomas in male rats treated by gavage for two years, even though the increase was not statistically significant (EPA, 1993a). A unit risk for inhalation exposure of 5.0E-05 per $\mu g/m^3$ was based on the incidence of kidney adenocarcinomas in male mice in the inhalation study mentioned above (EPA, 1993a). The unit risk is equivalent to 0.175 per mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg.

A.V.50 CIS-1,2-DICHLOROETHENE (CIS-1,2-DICHLOROETHYLENE)

A.V.50.1 Noncancer Toxicity

Repeated oral exposure of rats to cis-1,2-dichloroethene was associated with signs of anemia (decreased hematocrit and hemoglobin) (EPA 1993b). Inhalation exposure to isomeric mixtures of 1,2-dichloroethene induced narcosis, and mixed isomers of 1,2-dichloroethene were used as an anesthetic gas (ACGIH 1991). The EPA (1993b) presented a provisional chronic oral RfD of 0.01 mg/kg/day based on an NOAEL for signs of anemia in rats and an uncertainty factor of 3000. A provisional subchronic oral RfD of 0.1 mg/kg/day was derived from the same NOAEL and an uncertainty factor of 300. Target organs appear to be the erythrocyte for oral exposure and the CNS for inhalation exposure.

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A.V.50.2 Carcinogenicity

The EPA (1993a) classifies cis-1,2-dichloroethene as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans), based on an absence of human or animal cancer data. Quantitative estimates of cancer risk are not derived for Group D chemicals.

A.V.51 TRANS-1,2-DICHLOROETHENE (TRANS-1,2-DICHLOROETHYLENE)

A.V.51.1 Noncancer Toxicity

The oral $LD_{50/30}$ for trans-1,2-dichloroethene in rats was 1275 mg/kg; death was preceded by CNS and respiratory depression (ACGIH 1991). Histopathologic examination revealed lesions in the lungs and heart. Prolonged oral administration induced clinicopathologic evidence of mild liver damage (EPA 1994). An NOAEL for this effect in a 90-day drinking water study in mice and an uncertainty factor of 1000 was the basis for a verified chronic oral RfD of 0.02 mg/kg/day. A provisional subchronic oral RfD of 0.2 mg/kg/day was derived from the same NOAEL and an uncertainty factor of 100 (EPA 1992b). The target organs for inhalation exposure to trans-1,2-dichloroethene are the CNS, heart, and lungs; the liver appears to be the principal target of oral exposure.

A.V.51.2 Carcinogenicity

Data regarding the carcinogenicity of trans-1,2-dichloroethene were not located.

A.V.52 TRANS-1,4-DICHLORO-2-BUTENE

A.V.52.1 Health Effects

It is a poison by ingestion, inhalation and intravenous routes. It is moderately toxic by skin contact. It is a severe skin and eye irritant. (Sax and Lewis, 1989)

A.V.52.2 Carcinogenicity

1,4-Dichloro-2-butene is an experimental teratogen. Some mutagenic data exists. (Sax and Lewis 1989). The EPA (1992b) has reported a Cancer Slope Factor of 9.3E+00 mg/kg/day for the inhalation route of exposure. The EPA (1993a) has classified trans-1,4-dichloro-2-butene in cancer weight-of-evidence group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans).

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A.V.53 DIETHYL PHTHALATE

A.V.53.1 Noncancer Toxicity

Diethyl phthalate appears to have a low order of chronic oral toxicity. Reduced food intake and growth rate were the only effects observed in rats fed a diet containing 5 percent diethyl phthalate (3160 mg/kg bw-day) for 16 weeks (Brown et al. 1978). No effects were observed in rats similarly treated with 1 percent in the diet (750 mg/kg bw-day). In a two-year study, retarded growth and reduced food efficiency were observed in rats fed a diet containing 5 percent diethyl phthalate (Food Research Laboratories, Inc. 1955). No effects were observed in rats similarly fed a diet containing 2.5 percent diethyl phthalate. Intraperitoneal injection of pregnant rats induced mild developmental effects (Singh et al. 1972).

The acute oral toxicity of diethyl phthalate is very low; the $LD_{50/30}$ in rats was 9500 to 31,000 mg/kg (ACGIH 1991). Repeated oral treatment reduced food intake, body weight gain, and food efficiency (body weight gain/unit food intake), and altered organ weights, but produced no histopathologic lesions (EPA 1994). Based on an NOAEL for decreased weight gain and altered organ weights in a subchronic dietary study in rats and an uncertainty factor of 1000, EPA (1993a) derived a verified chronic oral RfD of 0.8 mg/kg/day. A provisional subchronic oral RfD of 8 mg/kg/day was based on the same NOAEL and an uncertainty factor of 100 (EPA 1992b). The data were not sufficient to identify target organs for the toxicity of diethyl phthalate.

The EPA (1993a) derived an RfD of 0.8 mg/kg/day for chronic oral exposure from the NOAEL of 750 mg/kg/day in the 16-week feeding study in rats (Brown et al. 1978). An uncertainty factor of 1000 was applied with factors of 10 each for inter- and intraspecies variation, and to expand from subchronic to chronic exposure.

A.V.53.2 Carcinogenicity

The EPA (1993a) classifies diethyl phthalate as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans) on the basis of no cancer data in humans and inadequate cancer data in animals. The only long-term studies, the 16-week and 2-year dietary studies described above, were not designed to measure carcinogenicity. Quantitative risk estimates are not derived for Group D compounds.

A.V.54 2,4-DIMETHYLPHENOL

A.V.54.1 Noncancer Toxicity

Little is known about the toxicity of 2,4-dimethylphenol. The EPA (1993a) presented a chronic oral RfD of 0.02 mg/kg/day based on an NOAEL for nervous system effects and blood alterations in orally treated mice and an uncertainty factor of 3000. The EPA (1992b) presented a subchronic oral RfD of 0.2 mg/kg/day based on the same NOAEL and an uncertainty factor of 300. The nervous system and blood may be target organs for the oral toxicity of 2,4-dimethylphenol.

A.V.54.2 Carcinogenicity

Data were not located regarding the carcinogenicity of 2,4-dimethylphenol.

A.V.55 2,4-DINITROPHENOL

A.V.55.1 Noncancer Toxicity

2,4-Dinitrophenol is a deadly human poison by ingestion. It is an experimental poison by ingestion, inhalation, intravenous, intraperitoneal, subcutaneous, intramuscular and possibly other routes. It is moderately toxic by skin contact (Sax and Lewis, 1989). The EPA (1993a) has reported an RfD of 2.0E-03 mg/kg/day for the oral route with an uncertainty factor of 1000.

A.V.55.2 Carcinogenicity

2,4-Dinitrophenol is an experimental teratogen. Experimental reproductive effects have been noted. Some mutagenic data exists (Sax and Lewis, 1989).

A.V.56 2,6-DINITROTOLUENE

A.V.56.1 Noncancer Toxicity

2,6-Dinitrotoluene is a poison by ingestion and a skin irritant. (Sax and Lewis, 1989). Target organs are the blood, liver, and CVS (NIOSH, 1990). The EPA (1992b) has reported an RfD of 1.0E-03 mg/kg/day for the oral route of exposure using an uncertainty factor of 3000.

A.V.56.2 Carcinogenicity

2,6-Dinitrotoluene is an experimental tumorigen. Some mutagenic data exists. (Sax and Lewis, 1989). The EPA (1993a) has reported a CSF for the oral route of 6.8E-01 mg/kg/day based on a mixture of 2,4-/2,6-dinitrotoluene isomers.

A.V.57 DI-N-OCTYLPHTHALATE

A.V.57.1 Noncancer Toxicity

The oral $LD_{50/30}$ for di-n-octylphthalate in mice was 6513 mg/kg (Sax 1984). Intraperitoneal injection in rats during organogenesis induced teratogenicity. The EPA (1993b) presented a provisional chronic and subchronic oral RfD of 0.02 mg/kg/day, based on an LOAEL for increased liver and kidney weight and serum biochemical evidence of liver damage in a dietary study in rats. An uncertainty factor of 1000 was used. The data suggested that the liver, kidney, and fetus are the target organs for the toxicity of di-n-octylphthalate.

A.V.57.2 Carcinogenicity

Data were not located regarding the carcinogenicity of di-n-octylphthalate.

A.V.58 1,4-DIOXANE

A.V.58.1 Noncancer Toxicity

The acute oral toxicity of 1,4-dioxane is low; $LD_{50/30}$ values in laboratory animals ranged from 2000 to 6000 mg/kg (ACGIH 1991). Repeated oral exposure was associated with severe liver and kidney pathology. Inhalation studies in laboratory animals failed to identify adverse effects. Liver and kidney pathology were observed in workers exposed to high levels in the air. Neither oral nor inhalation RfD or RfC values were located for 1,4-dioxane. The target organs for oral exposure to 1,4-dioxane are the liver and kidney.

A.V.58.2 Carcinogenicity

Cancer studies consistently associated drinking water exposure of rats to 1,4-dioxane with increased incidence of nasal cavity and liver tumors (EPA 1994). Drinking water exposure of mice resulted in increased incidence of liver tumors. An inhalation study in rats was negative. Occupational studies are inadequate to implicate 1,4-dioxane as a human carcinogen. On the basis of sufficient evidence

for carcinogenicity in animals and inadequate evidence in humans, 1,4-dioxane is classified a cancer weight-of-evidence Group B2 compound (probable human carcinogen). The EPA (1993a) derived an oral slope factor of 0.011 per mg/kg/day, based on carcinomas of the nasal turbinates in orally exposed rats. Risk associated with inhalation exposure was not estimated.

A.V.59 ETHYL BENZENE

A.V.59.1 Noncancer Toxicity

Subchronic to chronic oral or inhalation exposure of laboratory animals to ethyl benzene induced mild liver and kidney lesions (EPA 1994). Acute inhalation exposure induced irritation of the mucous membranes in animals and humans, and prolonged inhalation exposure induced testicular degeneration in rabbits and monkeys (ACGIH 1991). The EPA (1993a) presented a verified chronic oral RfD for ethyl benzene of 0.1 mg/kg/day based on an NOEL for liver and kidney toxicity in female rats in a subchronic gavage study and an uncertainty factor of 1000. The EPA (1992b) presented a provisional subchronic oral RfD of 1 mg/kg/day based on the same NOEL and an uncertainty factor of 100. The EPA (1993a) also presented a verified chronic inhalation RfC of 1 mg/m^3 derived from studies on developmental effects in rats and rabbits and an uncertainty factor of 300. The same value was adopted as the provisional subchronic inhalation exposure (EPA 1992b). The inhalation RfC is equivalent to 0.3 mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. Target organs for exposure to ethyl benzene include the liver, kidneys, and testes, and, for inhalation exposure, the mucous membranes.

A.V.59.2 Carcinogenicity

Ethyl benzene is classified as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans) (EPA 1994) based on an absence of human or animal cancer studies. Quantitative estimates are not derived for Group D chemicals.

A.V.60 ETHYL PARATHION (PARATHION)

Ethyl parathion is generally known by its synonym, parathion (EPA 1994).

A.V.60.1 Noncancer Toxicity

Parathion is a cholinesterase inhibitor that produces signs and symptoms of muscarinic stimulation (parasympathetic stimulation: increased secretion, bronchial constriction, miosis, GI cramps, and

diarrhea) and nicotinic stimulation followed by blockade (tachycardia, hypertension, muscle fasciculation, tremors, muscle weakness, flaccid paralysis) (Ecobichon 1991). In occupational exposure, reduced blood cholinesterase activity is a more sensitive endpoint than symptoms of toxicity (ACGIH 1986). Currently, no RfDs or RfCs are available for parathion.

A.V.60.2 Carcinogenicity

The EPA (1993a) classifies parathion as a cancer weight-of-evidence Group C compound (possible human carcinogen), based on no human data and an increased frequency of adrenal cortical and thyroid tumors observed in a dietary study in rats. Quantitative risk estimates were not available.

A.V.61 HEPTACHLOR (Clement, 1985)

A.V.61.1 Health Effects

Heptachlor and heptachlor epoxide are liver carcinogens when administered orally to mice. Results from mutagenicity bioassays suggest that these compounds also may have genotoxic activity. Reproductive and teratogenic effects in rats include decreased litter size, shortened life span of suckling rats, and development of cataracts in offspring.

Tests with laboratory animals, primarily rodents, demonstrate acute and chronic toxic effects due to heptachlor exposure. Although heptachlor and heptachlor epoxide are absorbed most readily through the gastrointestinal tract, inhalation and skin contact are also potential routes of exposure. Acute exposure by various routes can cause development of hepatic vein thrombi and can effect the central nervous system and cause death. Chronic exposure induces liver changes, affects hepatic microsomal enzyme activity, and causes increased mortality in offspring. The oral LD_{50} in the rat is 40 mg/kg for heptachlor and 47 mg/kg for heptachlor epoxide.

Although there are reports of acute and chronic toxicity in humans, with symptoms including tremors, convulsions, kidney damage, respiratory collapse, and death, details of such episodes are not well documented. Heptachlor epoxide has been found in a high percentage of human adipose tissue samples, and also in human milk samples and biomagnification of heptachlor/heptachlor epoxide occurs. This compound also has been found in the tissues of stillborn infants, suggesting an ability to cross the placenta and bioaccumulate in the fetus.

A.V.62 HEXACHLOROCYCLOHEXANES (MCM) (Clement, 1985)

A.V.62.1 Health Effects

The alpha, beta, and gamma isomers of hexachlorocyclohexane have all been shown to cause liver tumors in mice but not in other tested species. HCH has not been thoroughly tested for genotoxic effects but does not appear to be mutagenic. The alpha, beta, and delta isomers have not been tested for their teratogenic or reproductive toxicological potential. Lindane (gamma-MCM) has been tested and was not teratogenic, but in two studies it decreased the number of live young produced (Earl et al. 1973). Alpha-HCH has been shown to cause nonmalignant lesions in the liver of test animals at doses below those required to induce tumors. Lindane has been associated with the development of aplastic anemia in humans (West 1967).

A.V.63 HEXACHLOROETHANE (Clement, 1985)

A.V.63.1 Health Effects

There is limited evidence that hexachloroethane is carcinogenic in experimental animals. In a National Cancer Institute study, hexachloroethane administered by gavage produced malignant liver tumors in male and female B6C3F1 mice. It did not cause a statistically significant increase in tumors in Osborne-Mendel rats, but some rare renal tumors did develop. Hexachloroethane has not been reported to be mutagenic. Reduced litter sizes were observed after oral administration of 5, 5000 mg/kg to pregnant rats.

Hexachloroethane's major physiological effects in animals is on the central nervous system. Oral doses of 1-1.4 g/kg caused weakness, staggering gait, and twitching muscles in dogs. Hepatic dysfunction and renal damage were also reported in various experiments. The oral LD_{50} for rats was 4,460 mg/kg. The dermal LD_{50} for rabbits was more than 32,000 mg/kg.

A.V.64 2-HEXANONE (METHYL N-BUTYL KETONE)

A.V.64.1 Noncancer Toxicity

The acute oral toxicity of 2-hexanone is low, with an oral $LD_{50/30}$ for rats of 2600 mg/kg (ACGIH 1986). The classic effect of occupational (dermal and inhalation) exposure to 2-hexanone is peripheral neuropathy. The same effect was observed in inhalation experiments with laboratory

animals. Studies by the Carnegie Mellon Institute of Research (1977a, 1977b) and Eben et al (1979) on Laboratory Rats resulted in an overall LOAEL of 40 mg/kg/day. A provisional chronic oral RfD of 0.04 mg/kg/day was derived based on the application of an uncertainty factor of 10,000 to the LOAEL.

A.V.64.2 Carcinogenicity

Data were not located regarding the carcinogenicity of 2-hexanone.

A.V.65 INDENO(1,2,3-CD)PYRENE

A.V.65.1 Noncancer Toxicity

Little information was found on the toxicity of indeno(1,2,3-cd)pyrene. Because of its structural similarity its properties should resemble benzo(a)pyrene.

A.V.65.2 Carcinogenicity

A Clement's relative potency factor (RFP) has been developed for indeno(1,2,3-cd)pyrene. This allows the estimation of CSFs of 2.0E+00 and 1.7E+00 mg/kg/day for the oral and inhalation routes respectively. The EPA (1993a) has classified indeno(1,2,3-cd)pyrene in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on tumors in mice following lung implants.

A.V.66 ISOBUTYL ALCOHOL

A.V.66.1 Noncancer Toxicity

Oral or inhalation exposure to isobutyl alcohol induced CNS depression, liver and kidney effects, and decreased erythrocyte count in laboratory animals (ACGIH 1986; EPA 1994). The EPA (1993a) presented a verified chronic oral RfD of 0.3 mg/kg/day based on an NOEL for CNS effects in orally treated rats and an uncertainty factor of 1000. The EPA (1992b) presented a provisional subchronic oral RfD of 3 mg/kg/day based on the same NOEL and an uncertainty factor of 100. Target organs for the toxicity of isobutyl alcohol are the CNS, liver, kidney, and erythrocyte.

A.V.66.2 Carcinogenicity

Data regarding the carcinogenicity of isobutyl alcohol were not located.

A.V.67 LEAD-210

This compound is currently under investigation. Little or no information is available at this time; however, as information becomes available, it will be incorporated into future CRAREs. The EPA has derived slope factors, and they are presented in Table A.4-1.

A.V.68 LEAD

A.V.68.1 Pharmacokinetics

Studies in humans indicate that an average of 10 percent of ingested lead is absorbed, but estimates as high as 40 percent were obtained in some individuals (Tsuchiya 1986). Nutritional factors have a profound effect on GI absorption efficiency. Children absorb ingested lead more efficiently than adults; absorption efficiencies up to 53 percent were recorded for children three months to eight years of age. Similar results were obtained for laboratory animals; absorption efficiencies of 5 to 10 percent were obtained for adults and ≥50 percent were obtained for young animals. The deposition rate of inhaled lead averages approximately 30 to 50 percent, depending on particle size, with as much as 60 percent deposition of very small particles (0.03 μm) near highways. All lead deposited in the lungs is eventually absorbed.

Approximately 95 percent of the lead in the blood is located in the erythrocytes (EPA 1990c). Lead in the plasma exchanges with several body compartments, including the internal organs, bone, and several excretory pathways. In humans, lead concentrations in bone increase with age (Tsuchiya, 1986). About 90 percent of the body burden of lead is located in the skeleton. Neonatal blood concentrations are about 85 percent of maternal concentrations (EPA 1990c). Excretion of absorbed lead is principally through the urine, although GI secretion, biliary excretion, and loss through hair, nails, and sweat are also significant.

A.V.68.2 Noncancer Toxicity

The noncancer toxicity of lead to humans has been well characterized through decades of medical observation and scientific research (EPA 1994). The principal effects of acute oral exposure are colic with diffuse paroxysmal abdominal pain (probably due to vagal irritation), anemia, and, in severe cases, acute encephalopathy, particularly in children (Tsuchiya 1986). The primary effects of long-term exposure are neurological and hematological. Limited occupational data indicate that long-term exposure to lead may induce kidney damage. The principal target organs of lead toxicity are the

erythrocyte and the nervous system. Some of the effects on the blood, particularly changes in levels of certain blood enzymes, and subtle neurobehavioral changes in children, appear to occur at levels so low as to be considered nonthreshold effects.

EPA (1992b) presents no inhalation RfC for lead, but referred to the National Ambient Air Quality Standard (NAAQS) for lead, which could be used in lieu of an inhalation RfC. The NAAQSs are based solely on human health considerations and are designed to protect the most sensitive subgroup of the human population. The NAAQS for lead is 1.5 $\mu g/m^3$, averaged quarterly (EPA 1992b). The NAAQS is equivalent to 0.00043 mg/kg/day, assuming a body weight of 70 kg and an inhalation rate of 20 m^3/day.

The EPA (1990c, 1993a) determined that it is inappropriate to derive an RfD for oral exposure to lead for several reasons. First, the use of an RfD assumes that a threshold for toxicity exists, below which adverse effects are not expected to occur; however, the most sensitive effects of lead exposure, impaired neurobehavioral development in children and altered blood enzyme levels associated with anemia, may occur at blood lead concentrations so low as to be considered practically nonthreshold in nature. Second, RfD values are specific for the route of exposure for which they are derived. Lead, however, is ubiquitous, so that exposure occurs from virtually all media and by all pathways simultaneously, making it practically impossible to quantify the contribution to blood lead from any one route of exposure. Finally, the dose-response relationships common to many toxicants, and upon which derivation of an RfD is based, do not hold true for lead. This is because the fate of lead within the body depends, in part, on the amount and rate of previous exposures, the age of the recipient, and the rate of exposure. There is, however, a reasonably good correlation between blood lead concentration and effect. Therefore, blood lead concentration is the appropriate parameter on which to base the regulation of lead.

The EPA UBK lead model is an iterated set of equations that estimate blood lead concentration in children aged 0 to 7 years (EPA 1990c; 1991c). The biokinetic part of the model describes the movement of lead between the plasma and several body compartments and estimates the resultant blood lead concentration. The rate of the movement of lead between the plasma and each compartment is a function of the transition or residence time (i.e., the mean time for lead to leave the plasma and enter a given compartment, or the mean residence time for lead in that compartment). Compartments modeled include the erythrocytes, liver, kidneys, all the other soft tissue of the body,

cortical bone, and trabecular bone. Excretory pathways and their rates are also modeled. These include the mean time for excretion from the plasma to the urine, from the liver to the bile, and from the other soft tissues to the hair, skin, sweat, etc. The model permits the user to adjust the transition and residence times.

EPA guidance (EPA, 1989k) establishes an interim soil cleanup level for lead of 500 to 1000 parts per million (ppm) to be applied at Superfund sites. This range is considered by EPA to be protective for direct contact with lead-contaminated soils in residential settings. The guidance adopts recommendations of the Centers for Disease Control and is to be followed when current or predicted land use is residential.

In more recent guidance (EPA 1991i) EPA states that they are seeking resolution of specific technical concerns before issuing a directive recommending the UBK model as the preferred method for setting lead cleanup levels at CERCLA sites. The model is under review by the Science Advisory Board, and a guidance manual is under development.

A.V.68.3 Carcinogenicity

EPA (1993a) classifies lead in cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate evidence of cancer in humans and sufficient animal evidence. The human data consist of several epidemiologic occupational studies that yielded confusing results. All of the studies lacked quantitative exposure data and failed to control for smoking and concomitant exposure to other possibly carcinogenic metals. Rat and mouse bioassays showed statistically significant increases in renal tumors following dietary and subcutaneous exposure to several soluble lead salts. Various lead compounds were observed to induce chromosomal alterations in vivo and in vitro, sister chromatid exchange in exposed workers, and cell transformation in Syrian hamster embryo cells; to enhance simian adenovirus induction; and to alter molecular processes that regulate gene expression. EPA (1993a) declined to estimate risk for oral exposure to lead because many factors (e.g., age, general health, nutritional status, existing body burden and duration of exposure) influence the bioavailability of ingested lead, introducing a great deal of uncertainty into any estimate of risk.

A.V.69 NITROBENZENE

A.V.69.1 Health Effects

When nitrobenzene is ingested or inhaled, the outstanding systemic effect is methemoglobin formation. When the iron component of hemoglobin is converted from the ferrous state to the ferric state, the resultant methemoglobin is no longer capable of releasing oxygen to the tissue of the body.

Numerous accidental poisonings and deaths in humans from ingestion of nitrobenzene have been reported but these studies usually lack clear chemical identification of nitrobenzene as the ingested substance.

Target organs are the blood liver, kidneys, CVS, and skin (NIOSH, 1990).

The EPA (1993a) has published an RfD of 5.0E-04 mg/kg/day for the oral route of exposure. The EPA (1992b) has also published an RfD of 5.7E-04 mg/kg/day for the inhalation route of exposure.

A.V.69.2 Carcinogenicity

No studies were located regarding the carcinogenic potential of nitrobenzene in humans or animals (ATSDR, 1989, draft). The EPA (1993a) has classified nitrobenzene in cancer weight-of-evidence Group D (not classifiable as to Human Carcinogenicity, i.e. inadequate or no evidence).

A.V.70 N-NITROSO-DIETHYLAMINE

A.V.70.1 Health Effects

It is a poison by ingestion, intravenous, intraperitoneal, subcutaneous, and possibly other routes. (Sax and Lewis, 1989).

A.V.70.2 Carcinogenicity

The EPA (1993a) has published a CSF of 1.5E+02 mg/kg/day for both the oral and inhalation routes of exposure. The EPA (1993a) has classified N-nitroso-diethylamine in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans) based on tumors at multiple sites in both rodent and nonrodent species.

A.V.71 N-NITROSO-DI-N-PROPYLAMINE

A.V.71.1 Health Effects

Little information was found on N-nitroso-di-n-propylamine. Because of the chemical structural similarities, its properties should resemble N-nitrosodiethylamine.

A.V.71.2 Carcinogenicity

The EPA (1993a) has published a CSF of 7.01E+00 for the oral route of exposure. The EPA (1993a) has classified N-nitroso-di-n-propylamine in cancer weight-of-evidence Group B2 (Probable Human Carcinogen, sufficient evidence of carcinogenicity in animals with inadequate or lack of evidence in humans).

A.V.72 MAGNESIUM (Clement, 1985)

A.V.72.1 Health Effects

There is no evidence to suggest that magnesium has carcinogenic, mutagenic, teratogenic, or reproductive effects in humans or experimental animals. Magnesium oxide fumes can produce metal fume fever in humans and experimental animals. Exposure to magnesium oxide dust may cause irritation of the eyes and respiratory tract. Human exposure to magnesium usually occurs by ingestion. Magnesium is an essential element for humans, animals, and plants. Ingestion of 3.6 to 4.2 mg/kg/day is thought to be adequate for maintenance of magnesium balance in humans. The average adult American is estimated to ingest 240 to 480 mg/kg/day in food and water. However, magnesium is absorbed relatively poorly by the gastrointestinal tract and also is readily excreted in the urine. Excessive magnesium retention in the body generally only occurs as a result of severe kidney disease. Symptoms of hypermagnesemia can include a sharp drop in blood pressure, and respiratory paralysis due to central nervous system depression. Ingestion of magnesium salts at concentrations over 700 mg/liter can have a laxative effect. However, humans can adapt to ingestion of these levels in a relatively short time. Magnesium has a very unpleasant taste in water at concentrations producing toxic effects.

Different magnesium compounds vary in the severity of their toxic effects to experimental animals. Such effects include central nervous system and purgative effects similar to those seen in humans. Subcutaneous injection of powdered magnesium or magnesium alloys can produce symptoms in

experimental animals resembling gas gangrene. Application of powdered magnesium to abraded skin can produce an inflammatory reaction. However, these types of skin effects have not been reported in exposed worker.

A.V.73 MALATHION

A.V.73.1 Noncancer Toxicity

Malathion is an organic phosphorothioate that induces parasympathetic and CNS effects by inhibiting acetylcholinesterase activity at the nerve synapse (Ecobichon 1991). The acute oral toxicity of malathion is low, with an $LD_{50/30}$ in rats of approximately 2100 mg/kg (ACGIH 1986). Acute effects include GI cramps, diarrhea, salivation, muscle fasciculations, and tremors. Effects are preceded by reduced cholinesterase activity in the tissues, particularly in the erythrocytes and plasma. Symptoms in intoxicated humans included CNS symptoms such as emotional instability, confusion, and memory loss consistent with cholinesterase inhibition. Fatal cases showed damage to the myocardium and the pericardial blood vessels.

Effects observed in prolonged oral exposure studies in laboratory animals included reduced body weights and cholinesterase inhibition (EPA 1994). The EPA (1993a) derived an RfD of 0.02 mg/kg/day for chronic oral exposure from an NOEL of 0.23 mg/kg/day for erythrocyte cholinesterase inhibition in human volunteers ingesting 16 mg/day for 47 days (Moeller and Rider 1962). An uncertainty factor of 10 was applied to account for variations in sensitivity within the human population. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. The target organs for the toxicity of malathion are the nervous system and the heart.

A.V.73.2 Carcinogenicity

Malathion has not yet been reviewed by the EPA for evidence of carcinogenicity to humans (EPA 1994).

A.V.74 MANGANESE

A.V.74.1 Noncancer Toxicity

Manganese is nutritionally required in humans for normal growth and health (EPA 1994) Humans exposed to approximately 0.8 mg manganese/kg/day in drinking water exhibited lethargy, mental

disturbances (1/16 committed suicide), and other neurologic effects. The elderly appeared to be more sensitive than children. Oral treatment of laboratory rodents induced biochemical changes in the brain, but rodents did not exhibit the neurological signs exhibited by humans. Occupational exposure to high concentrations in air induced a generally typical spectrum of neurological effects, and increased incidence of pneumonia (ACGIH 1986).

Very recently, a chronic oral RfD of 0.005 mg/kg/day has been made available for manganese (EPA 1994). The subchronic oral RfD presented by EPA (1992b) was the same value as the chronic oral RfD. It seems prudent to remove the subchronic oral RfD as well, to reflect EPA's lack of confidence in this derivation. The EPA (1993a) presented a verified chronic inhalation RfC of 0.00005 mg/m^3 based on an LOAEL for respiratory symptoms and psychomotor disturbances in occupationally exposed humans and an uncertainty factor of 1000. The EPA (1992b) presented the same value as a subchronic inhalation RfC. The inhalation RfC is equivalent to 0.000014 mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. The CNS and respiratory tract are target organs of inhalation exposure to manganese.

A.V.74.2 Carcinogenicity

The EPA (1993a) classifies manganese in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans). Quantitative cancer risk estimates are not derived for Group D chemicals.

A.V.75 MERCURY

Mercury occurs in three forms: elemental, organic, and inorganic. Although the toxicity of all forms is mediated by the mercury cation, the extent of absorption and pattern of distribution within the body, which determines the effects observed, depends on the form to which the organism is exposed (Goyer 1991). Bacterial activity in the environment converts inorganic mercury to methyl mercury (Berlin 1986a). It is likely that either inorganic mercury or methyl mercury may be taken up by plants and enter the food chain, and this discussion will focus on inorganic and methyl mercury. Exposure to elemental mercury, which is more likely to occur in an occupational setting, is not discussed herein.

A.V.75.1 Pharmacokinetics

The GI absorption of inorganic mercury salts is about 2 to 10 percent in humans, and slightly higher in experimental animals (Berlin 1986a; Goyer 1991). Inorganic mercury in the blood is roughly equally divided between the plasma and erythrocytes. Distribution is preferentially to the kidney, with somewhat lower concentrations found in the liver, and even lower levels found in the skin, spleen, testes, and brain (Berlin 1986a). Inorganic mercury is excreted principally through the feces and urine, with minor pathways including the secretions of exocrine glands and exhalation of elemental mercury vapor.

Methyl mercury is nearly completely (90 to 95 percent) absorbed from the GI tract (Berlin 1986a). The concentration of methyl mercury in the erythrocytes is about 10 times that in the plasma. Methyl mercury leaves the blood slowly, showing particular affinity for the brain, particularly in primates. In rats, 1 percent of the body burden of methyl mercury is found in the brain, but in humans, 10 percent of the body burden is found in the brain. Somewhat lower levels are found in the liver and kidney. During pregnancy, methyl mercury accumulates in the fetal brain, often at levels higher than in the maternal brain. Most tissues except the brain transform methyl mercury to inorganic mercury. Excretion of methyl mercury is principally via the bile, with a half-life of 70 days in humans not suffering from toxicity. Following exposure to methyl mercury, some of the mercury in the bile exists as methyl mercury and some as the inorganic form. The inorganic form is largely passed in the feces, but the methyl mercury is subject to enterohepatic recirculation. Another important excretory pathway for methyl mercury is lactation.

A.V.75.2 Noncancer Toxicity

Target organs for inorganic or methyl mercury include the kidney, nervous system, fetus, and neonate. Acute oral exposure to high doses of inorganic mercury causes severe damage to the GI mucosa because of the corrosive nature of mercury salts, which may lead to bloody diarrhea, shock, circulatory collapse, and death (Berlin 1986a; Goyer 1991). Acute sublethal poisoning induces severe kidney damage. Chronic exposure induces an autoimmune glomerular disease and renal tubular injury. The EPA (1992b) presented a verified RfD of 0.3 μg/mg-day for chronic oral exposure to inorganic mercury, based on kidney effects in rats.

Acute or chronic exposure to methyl mercury leads to neurologic dysfunction (Berlin 1986a; Goyer 1991). The region of the nervous system affected is species-dependent. Methyl mercury poisoning in

rats induces peripheral nerve damage and kidney effects. In humans, the sensory cortex appears to be the most sensitive. The brain of the fetus and the neonate may be unusually sensitive to methyl mercury; retarded neurologic development was observed in prenatally exposed children whose mothers showed no clinical signs of poisoning. The EPA (1993a) derived an RfD of 0.3 μg/kg/day for chronic oral exposure to methyl mercury based on neurological effects in environmentally exposed humans. In this derivation, an intake of 3 μg/kg/day was an LOAEL corresponding to a blood level of 200 ng/mL, which was associated with CNS effects. An uncertainty factor of 10 was used to estimate an NOAEL from an LOAEL. An inhalation RfC of 0.0003 mg/kg/day (uncertainty factor of 30) has been established for inorganic mercury based on neurotoxic effects in humans. This translates into a chronic RfD of 0.000086 mg/kg/day (EPA, 1993b).

A.V.75.3 Carcinogenicity

The EPA (1993a) classifies inorganic mercury in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans), based on no data regarding cancer in humans, and inadequate animal and supporting data. In an intraperitoneal injection study with metallic mercury in rats, sarcomas developed only in those tissues in direct contact with the test material (Druckrey et al. 1957). A two-year dietary study in rats with mercuric acetate (inorganic mercury) yielded no evidence of carcinogenicity (Fitzhugh et al. 1950). In mice, however, dietary exposure to high doses of mercury chloride for up to 78 weeks induced renal adenomas and adenocarcinomas (Mitsumori et al. 1981). The EPA has not yet evaluated the carcinogenicity of organic mercury. No carcinogenic effect, however, was observed in a two-year feeding study with phenylmercuric acetate in rats (Fitzhugh et al. 1950).

A.V.76 METHYLENE CHLORIDE

A.V.76.1 Noncancer Toxicity

Occupational exposure to high concentrations of methylene chloride may induce liver damage (ACGIH 1986). Liver effects were induced in animals by inhalation or oral exposure (EPA 1994). The EPA (1993a) presented a verified chronic oral RfD for methylene chloride of 0.06 mg/kg/day based on an NOAEL for liver toxicity in male and female rats in chronic drinking water studies and an uncertainty factor of 100. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. The EPA (1992b) also presented a provisional subchronic and chronic inhalation RfC of 3 mg/m^3, derived from an NOAEL for liver toxicity in a two-year intermittent exposure inhalation

study in rats and an uncertainty factor of 100. The inhalation RfC is equivalent to 0.9 mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. The principal target organ for methylene chloride is the liver.

A.V.76.2 Carcinogenicity

Methylene chloride is classified in EPA cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human data and sufficient evidence of carcinogenicity in animals (EPA 1994). Animal inhalation studies showed increased incidence of hepatocellular neoplasms and alveolar/bronchiolar neoplasms in male and female mice, mammary tumors in rats of either sex, salivary gland sarcomas in male rats, and leukemia in female rats. Oral studies were inconclusive. An oral slope factor of 0.0075 per mg/kg/day was based on the incidence of liver tumors in two inhalation studies in mice. An inhalation unit risk of 4.7E-07 per $\mu g/m^3$ was based on the incidence of liver and lung tumors in one inhalation study. The inhalation unit risk is equivalent to 0.0016 per mg/kg/day, based on inhaled dose, assuming humans inhale 20 m^3 of air/day and weigh 70 kg.

A.V.77 2-METHYLNAPHTHALENE

A.V.77.1 Noncancer Toxicity

Data located regarding the noncancer toxicity of 2-methylnaphthalene are limited to an oral lowest dose associated with lethality (LD_{Lo}) in rats of 5000 mg/kg (Sax 1984). Neither oral nor inhalation RfD or RfC values were located.

A.V.77.2 Carcinogenicity

Data regarding the carcinogenicity of 2-methylnaphthalene were not located.

A.V.78 METHYL PARATHION

A.V.78.1 Noncancer Toxicity

Methyl parathion inhibited cholinesterase activity in animals and humans, reduced erythrocyte count, hematocrit and blood hemoglobin concentration, and may have induced degeneration in the peripheral nerves of laboratory animals (EPA 1994). The EPA (1993a) presented a verified RfD of 0.00025 mg/kg/day for chronic oral exposure based on an NOEL for cholinesterase inhibition and effects on the erythrocytes in a two-year dietary study in rats. An uncertainty factor of 100 was used. The

EPA (1992b) presented the same value as a provisional subchronic oral RfD. Target organs of methyl parathion are the erythrocyte and nervous system.

A.V.78.2 Carcinogenicity

Data regarding the carcinogenicity of methyl parathion were not located.

A.V.79 4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)

The compound 4-methyl-2-pentanone is more commonly known by its synonym, methyl isobutyl ketone (MIBK).

A.V.79.1 Noncancer Toxicity

The acute toxicity of MIBK is low; oral $LD_{50/30}$ values in rats, mice, and guinea pigs ranged from 1600 to approximately 4600 mg/kg (Krasavage et al. 1982). In a 13-week gavage study in rats, 50 mg/kg/day was an NOEL for liver and kidney effects (EPA 1992b). Acute exposure of laboratory animals to high concentrations in air induced narcosis and death (Krasavage et al. 1982). Repeated inhalation exposures induced CNS effects and increased the kidney- and liver-to-body-weight ratios. Occupational exposure was associated with CNS and GI effects, and, at high concentrations, ocular irritation (ACGIH 1986).

The EPA (1992b) presented a provisional chronic oral RfD of 0.05 mg/kg/day based on the oral NOEL in rats and an uncertainty factor of 1000. The same NOEL and an uncertainty factor of 100 was the basis of a provisional subchronic oral RfD of 0.5 mg/kg/day. A provisional chronic inhalation RfC of 0.08 mg/m^3 was based on an NOEL for increased kidney and liver weights in a 90-day inhalation study in rats and an uncertainty factor of 1000. A provisional subchronic inhalation RfC of 0.8 mg/m^3 was derived from the same inhalation NOEL and an uncertainty factor of 100. The chronic and subchronic inhalation RfC values are equivalent to 0.02 and 0.2 mg/kg/day, respectively, assuming an inhalation rate of 20 m^3/day and a body weight of 70 kg for humans. The principal target organ for MIBK is the CNS.

A.V.79.2 Carcinogenicity

Data were not located regarding the carcinogenicity of MIBK.

A.V.80 2-METHYLPHENOL (O-CRESOL)

A.V.80.1 Noncancer Toxicity

The oral toxicity of 2-methylphenol is low; the $LD_{50/30}$ in rats was 1350 mg/kg (ACGIH 1991). Ingestion by animals or humans of mixed isomers of methylphenol was associated with corrosion of the GI tissues, kidney tubular, pancreatic and liver damage, and nodular pneumonia. Occupational exposure of humans or inhalation exposure of animals to mixed isomers of methylphenol was associated with neurological effects, impaired kidney function, and irritation of the respiratory tract. The EPA (1993a) presented a verified chronic oral RfD of 0.05 mg/kg/day based on an NOAEL for decreased body weight and neurotoxicity in a gavage study in rats and an uncertainty factor of 1000. The EPA (1992b) presented a subchronic oral RfD of 0.5 mg/kg/day based on the same NOAEL and an uncertainty factor of 100. Principal target organs are the nervous system, respiratory mucosa, liver, and kidney.

A.V.80.2 Carcinogenicity

Methylphenol isomers were tumor promoters in the two-stage mouse skin tumor initiation-promotion test (ACGIH 1991). The EPA (1993a) classified 2-methylphenol as a cancer weight-of-evidence Group C compound (possible human carcinogen), but derived no quantitative risk estimates for either oral or inhalation exposure.

A.V.81 3-METHYLPHENOL (M-CRESOL)

A.V.81.1 Noncancer Toxicity

The compound 3-methylphenol is often known by its primary synonym, m-cresol. The chemical produced CNS effects (salivation, urination, tachypnea, hypoactivity, tremors) and reduced food consumption and growth rate in rats treated by gavage for 90 days (EPA 1986a, 1987b). There appeared to be no functional or morphologic effects on the other organs of the body. The EPA (1992b) derived an RfD of 0.05 mg/kg/day from an NOAEL of 50 mg/kg/day in the 90-day rat study (EPA 1986a, 1987b). An uncertainty factor of 1000 was applied with factors of 10 each for inter- and intraspecies variation, and to expand from subchronic to chronic exposure.

Inhalation data are limited to a study that associated exposure to approximately 6 to 9 mg/m^3 with hematopoietic and respiratory tract effects in rats and nasopharyngeal irritation in humans (Uzhdavini

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et al. 1972). The data were insufficient for derivation of an RfC for chronic inhalation exposure (EPA 1992b).

A.V.81.2 Carcinogenicity

The EPA (1993a) classifies 3-methylphenol as a cancer weight-of-evidence Group C compound (possible human carcinogen), based on inadequate data in humans and limited data for carcinogenicity in animals. The human data consist of anecdotal data associating occupational exposure with a case of carcinoma of the urinary bladder and a case of carcinoma of the vocal cords, but a causal association is not credible. Animal studies identify 3-methylphenol as a tumor promoter in the two-stage skin-painting assay in mice, but the data were not sufficient for quantitative risk estimation.

A.V.82 4-METHYLPHENOL (P-CRESOL)

A.V.82.1 Noncancer Toxicity

The oral toxicity of 4-methylphenol is low; the $LD_{50/30}$ in rats is 1800 mg/kg (ACGIH 1991). Ingestion by animals or humans of mixed isomers of methylphenol was associated with corrosion of the GI tissues, kidney tubular, pancreatic and liver damage, and nodular pneumonia. Occupational exposure of humans or inhalation exposure of animals to mixed isomers of methylphenol was associated with neurological effects, impaired kidney function and irritation of the respiratory tract. The EPA (1992b) presented a provisional chronic oral RfD of 0.05 mg/kg/day based on an NOAEL for decreased body weight and neurotoxicity in a gavage study in rats and an uncertainty factor of 1000. The EPA (1992b) also presented a provisional subchronic oral RfD of 0.5 mg/kg/day based on the same NOAEL and an uncertainty factor of 100. Principal target organs are the nervous system, respiratory mucosa, liver and kidney.

A.V.82.2 Carcinogenicity

Methylphenol isomers are tumor promoters in the two-stage mouse skin tumor initiation-promotion test (ACGIH 1991). The EPA (1993a) classifies 2-methylphenol as a cancer weight-of-evidence Group C compound (possible human carcinogen), but derives no quantitative risk estimates for either oral or inhalation exposure.

A.V.83 MOLYBDENUM

A.V.83.1 Noncancer Toxicity

Molybdenum is a nutritionally essential trace element involved in copper and sulfur metabolism (Friberg and Lener 1986). Chronic molybdenum poisoning in livestock (heart disease) results from a molybdenum-copper imbalance and is characterized by anemia, GI disturbances, bone disorders, and growth depression. In laboratory animals, excess molybdenum induced effects in the liver, kidneys, and spleen. Gout-like symptoms were observed in humans living in a high molybdenum, low copper area. A few cases of pneumoconiosis were reported in occupationally exposed workers. The EPA (1992b) presented a provisional chronic oral RfD of 0.005 mg/kg/day based on an LOAEL in humans exposed to high levels in water and diet and an uncertainty factor of 30. A provisional subchronic oral RfD of 0.04 mg/kg/day was based on an NOAEL for biochemical changes in the blood of humans exposed to high levels in water and an uncertainty factor of 1000. Target organs for molybdenum toxicity include the erythrocyte, liver, and kidney.

A.V.83.2 Carcinogenicity

Data regarding the carcinogenicity of molybdenum were not located.

A.V.84 NEPTUNIUM-237

This compound is currently under investigation. Little or no information is available at this time; however, as information becomes available, it will be incorporated into future CRAREs. The EPA has derived slope factors, and they are presented in Table A.4-1.

A.V.85 NICKEL

A.V.85.1 Noncancer Toxicity

In a subchronic gavage study with nickel chloride in water, clinical signs of toxicity in rats included lethargy, ataxia, irregular breathing, reduced body temperature, salivation, and discolored extremities (EPA 1994). Inhalation exposure was associated with asthma and pulmonary fibrosis in welders using nickel alloys (ACGIH 1986). Lung effects were observed in laboratory animals exposed by inhalation. The EPA (1993a) presented a verified RfD of 0.02 for chronic oral exposure to nickel, based on an NOAEL for decreased organ and body weights in a two-year dietary study with nickel sulfate in rats and an uncertainty factor of 300. The EPA (1992b) presented the same value as a

provisional subchronic oral RfD. The CNS appears to be the target organ for the oral toxicity of nickel. The lung is clearly the target organ for inhalation exposure.

A.V.85.2 Carcinogenicity

Occupational exposure to nickel was associated with increased risk of nasal, laryngeal and lung cancer (ATSDR 1988a). Inhalation exposure of rats to nickel subsulfide increased the incidence of lung tumors. The EPA (1993a) presents a cancer weight-of-evidence Group A classification (human carcinogen) for nickel, and presents an inhalation unit risk of 0.00024 per $\mu g/m^3$ for nickel refinery dust. The unit risk is equivalent to 0.84 per mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. The quantitative estimate was derived from the human occupational studies.

A.V.86 NITRATE NITROGEN, NITRITE NITROGEN

A.V.86.1 Noncancer Toxicity

The oral toxicity of nitrate is mediated by its reduction to nitrite by the microflora of the GI tract (EPA 1994). Nitrite induces oxidation of hemoglobin to methemoglobin, which is incapable of transporting oxygen from the lungs to the tissues. Human toxicity is generally associated with high levels of nitrate or nitrite in drinking water. Infants are the most sensitive members of the population. The EPA (1993a) presented a verified chronic oral RfD for nitrate of 1.6 mg nitrate nitrogen/kg/day, based on an NOAEL for methemoglobinemia in infants and an uncertainty factor of 1. The EPA (1993a) also presented a verified chronic oral RfD for nitrite of 0.1 mg nitrite nitrogen/kg/day, based on the same NOAEL and an uncertainty factor of 10. The EPA (1992b) adopted the chronic oral RfD for nitrite nitrogen as sufficiently protective for subchronic inhalation as well. The target tissue for the toxicity of nitrate or nitrite is the erythrocyte.

A.V.86.2 Carcinogenicity

Data regarding the carcinogenicity of uncombined nitrate or nitrite were not located. Nitrite can combine with secondary amines in food or other nitrogenous compounds to form nitrosamines or other N-nitroso compounds, many of which are important animal carcinogens (Menzer 1991).

A.V.87 N-NITROSODIPHENYLAMINE (DIPHENYLNITROSAMINE)

A.V.87.1 Noncancer Toxicity

The acute oral toxicity of N-nitrosodiphenylamine is low; oral $LD_{50/30}$ values in rats and mice are 1650 and 3850 mg/kg, respectively (Sax 1984). Data regarding the noncancer effects of repeated oral or inhalation exposure were not located.

A.V.87.2 Carcinogenicity

The EPA (1993a) classifies N-nitrosodiphenylamine in cancer weight-of-evidence Group B2 (probable human carcinogen), based on inadequate human data and sufficient evidence for carcinogenicity in animals. A verified oral slope factor of 0.0049 per mg/kg/day was based on increased incidence of bladder tumors in a chronic drinking water study in rats.

A.V.88 4-NITROANILINE

A.V.88.1 Pharmacokinetics

Data regarding the extent of gastrointestinal absorption of 4-nitroaniline were not located in the available literature. Data regarding the dinitrobenzenes, however, suggest that absorption from the gastrointestinal tract may be substantial (EPA 1980b). 4-Nitroaniline is readily absorbed through the skin (ACGIH 1986). Lacking more quantitative data, default values for absorption efficiency of 0.9 for gastrointestinal absorption and 0.3 for dermal uptake from soil (EPA 1993d) appear to be reasonable.

A.V.88.2 Noncancer Toxicity

Oral LD_{50} values of 810, 450, and 750 mg/kg were reported for mice, guinea pigs, and rats, respectively (Sax, N.I. 1984), which suggests moderate toxicity by the oral route. Acute effects in humans include neurologic symptoms consistent with methemoglobinemia and hemolytic anemia (ACGIH 1986; Sax 1984). Chronic effects in laboratory animals include liver pathology (Sax 1984). An oral RfD of 0.003 mg/kg-day was located, but the basis of this derivation is unclear (EPA 1993c). Data regarding inhalation exposure were not located.

A.V.88.3 Carcinogenicity

Data regarding the carcinogenicity of 4-nitroaniline were not located in the available literature.

A.V.89 4-NITROPHENOL

A.V.89.1 Pharmacokinetics

Data regarding the pharmacokinetics of 4-nitrophenol were not located. EPA (1980) stated that the dinitrophenols are administrative. Lacking more quantitative data, default values for absorption efficiency of 0.9 for gastrointestinal absorption and 0.3 for dermal uptake from soil (EPA 1993c) appear to be reasonable.

A.V.89.2 Noncancer Toxicity

Oral LD_{50} values of 467 and 350 mg/kg were reported for mice and rats, respectively (Sax, N.I. 1984), which suggests moderate toxicity by the oral routes. Chronic effects in laboratory animals include liver pathology, splenomegaly and neurlogic signs (EPA 1980b). An oral RfD of 0.008 mg/kg-day was located, but the basis of this derivation is unclear (EPA 1993e). Data regarding inhalation exposure were not located.

A.V.89.3 Carcinogenicity

EPA (1993b) assigned 4-nitroaniline to EPA weight-of-evidence Group D, not classifiable as to carcinogenicity to humans.

A.V.90 PENTACHLOROPHENOL

A.V.90.1 Noncancer Toxicity

Acute inhalation exposure to mists or dusts of pentachlorophenol was associated with vascular damage culminating in heart failure (ACGIH 1986). Survivors suffered from impaired autonomic function, circulation, and vision. Chronic oral exposure was associated with liver and kidney lesions (EPA 1994). The EPA (1993a) presented a verified chronic oral RfD of 0.03 mg/kg/day based on an NOAEL for liver and kidney effects in a chronic dietary study in rats and an uncertainty factor of 100. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. Target organs for the toxicity of pentachlorophenol include the circulatory and nervous systems, and the liver and kidney.

A.V.90.2 Carcinogenicity

The EPA (1993a) classifies pentachlorophenol in cancer weight-of-evidence Group B2 (probable human carcinogen) on the basis of inadequate human data and sufficient animal data. The animal data consisted of dietary studies in mice that show an increased incidence of liver, adrenal and vascular tumors, and studies in rats that show no carcinogenic effect. The test material used in these studies was approximately 90 percent pure, and was contaminated with tri- and tetrachlorophenol, hexachlorobenzene, PCDDs, and PCDFs. The EPA (1993a) presented a verified oral slope factor of 0.12 per mg/kg/day, based on the incidence of liver, adrenal, and vascular tumors in orally exposed mice.

A.V.91 PHENANTHRENE

A.V.91.1 Noncancer Toxicity

Phenanthrene is a poison by intravenous route. It is moderately toxic by ingestion. It is a human skin photosensitizer (Sax and Lewis, 1989).

A.V.91.2 Carcinogenicity

Phenanthrene is an experimental neoplastigen and tumorigen by skin contact. (Sax and Lewis, 1989). The EPA (1993a) has classified phenanthrene in cancer weight-of-evidence Group D (Not classifiable as to Human Carcinogenicity, i.e. inadequate or no evidence).

A.V.92 PHENOL

A.V.92.1 Noncancer Toxicity

Oral $LD_{50/30}$ values for phenol were 300 mg/kg in mice and 414 mg/kg in rats (Sax 1984). Sub-chronic and chronic oral exposure were associated with depressed growth rate, possibly due to decreased water or food intake, and kidney damage (EPA 1994). The fetus appears to be more sensitive than adults, showing decreased body weights at doses that are not maternally toxic. Exposure of animals to phenol vapors was associated with damage to the lungs, heart, liver, and kidneys (ACGIH 1986). Phenol vapors are absorbed through the skin as readily as through the lungs. The EPA (1993a) presented a verified chronic oral RfD of 0.6 mg/kg/day, based on an NOAEL for reduced fetal body weight in rats treated by gavage and an uncertainty factor of 100. The EPA

(1992b) presented the same value as a provisional RfD for subchronic oral exposure. The principal target organs for the toxicity of phenol are the kidney and the fetus.

A.V.92.2 Carcinogenicity

The EPA (1993a) classifies phenol in cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans), based on the absence of cancer data in humans and inadequate animal data. Quantitative risk estimates are not derived for Group D compounds.

A.V.93 PLUTONIUM

There are no reports on the chemical toxicity of plutonium; however, the fibrosis observed in the lungs of exposed animals and humans could be due to chemical interactions. The radiologic toxicity of plutonium involves bone necrosis, bone and lung cancer, and detrimental effects on the reproductive system. Also, toxic effects are observed in offspring of pregnant animals exposed to plutonium. No ingestion data specific to plutonium are available.

Among the plutonium isotopes, the short-lived Pu-241 is especially toxic because of the high energy associated with its alpha particle emission. The toxicity of plutonium compounds is based primarily on the very high radiotoxicity of the plutonium atom and secondarily upon whatever atoms or combinations of atoms they might contain (Sax 1989). When inhaled, plutonium is retained in the lungs with an effective half-life that varies from hundreds of days for plutonium oxides to tens of days for more soluble forms. A significant portion of the plutonium oxide that leaves the lungs is translocated to the tracheobronchial lymph nodes. Plutonium solubilized within the lungs is translocated to the liver and skeleton where it is very tenaciously retained (Klaassen 1986).

In a classic long-term toxicity study performed by Bair et al., the effects of inhaled plutonium oxide were studied in beagle dogs for up to 10 years following inhalation exposure. At the highest levels of deposited activity, the dogs died within several hundred days with radiation pneumonitis and pulmonary fibrosis; at later times, death was related to severe pulmonary fibrosis, and beyond 1,000 days, although pulmonary fibrosis was still prominent, death was due to primary pulmonary neoplasia. The most common neoplasm was bronchioloalveolar carcinoma (Klaassen 1986). Hahn et al. (1983), using data reported by Bair and Thomas (1976), calculated the risk factor for Pu-239 alpha irradiation of the lungs to be 600 lung tumors per million rad to lung, or, assuming an RBE of 20, 30 lung tumors per millirem to lung.

Human data for plutonium exposure are available. Among workers contaminated, the case histories have been documented of 26 men who worked with plutonium during World War II. The initial body burden of these workers was between 20 and 8,500 Becquerel, and 11 of them received doses exceeding the maximum allowed by the International Commission for Radiological Protection. After a medical follow up of 37 years, two members of this group died of myocardial infarction and accidental trauma, respectively, compared to the 6.6 deaths expected on the basis of the adjusted rates for white males. Their 1982 exam provided no evidence that 37 years of exposure to internally deposited plutonium had adverse effects on their health (Seiler 1988).

Less toxicity data are available on trans-plutonium radionuclides such as americium and curium; however, the data that are available indicate a qualitative similarity to the toxicity of plutonium. McClellan, et al. (1972) noted that inhaled americium and curium, even as oxides, appeared more soluble than inhaled plutonium and rapidly translocated to the liver and skeleton. (Klaassen 1986)

A.V.93.1 Carcinogenicity

The EPA classifies all radionuclides as weight-of-evidence Group A substances (human carcinogens), based on their characteristic of emitting ionizing radiation and on the extensive epidemiologic data associating exposure with radiogenic cancers in humans (EPA 1992b). The carcinogenicity of Pu-238 (the predominant plutonium isotope at the FEMP) from internal exposure is due to alpha particles. The EPA (1992b) has reported cancer potency slope factors for the plutonium isotopes, and these are presented in Table II.1-1.

A.V.94 POLONIUM-210

Little or no information is available at this time for polonium-210; however, as information becomes available, it will be incorporated into future CRAREs. The EPA has derived slope factors and they are presented in Table A.4-1.

A.V.95 POLYAROMATIC HYDROCARBONS

PAHs are a large class of ubiquitous natural and anthropogenic chemicals, all with similar chemical structures (ATSDR 1990). There are 16 individual PAHs listed among the CPCs for Operable Unit 1.

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A.V.95.1 Pharmacokinetics

Although quantitative absorption data for the PAHs were not located, benzo(a)pyrene was readily absorbed across the GI (Rees et al. 1971) and respiratory epithelia (Kotin et al. 1969; Vainich et al. 1976). The high lipophilicity of other compounds in this class suggests that other PAHs also would be readily absorbed across GI and respiratory epithelia.

Benzo(a)pyrene was distributed widely in the tissues of treated rats and mice, but primarily to tissues high in fat, such as adipose tissue and mammary gland (Kotin et al. 1969; Schlede et al. 1970a). Patterns of tissue distribution of other PAHs would be expected to be similar because of the high lipophilicity of the members of this class.

Studies of the metabolism of benzo(a)pyrene provide information relevant to other PAHs because of the structural similarities of all members of the class. Metabolism involves microsomal mixed function oxidase hydroxylation of one or more of the phenyl rings with the formation of phenols and dihydrodiols, probably via formation of arene oxide intermediates (EPA 1979a). The dihydrodiols may be further oxidized to diol epoxides, which, for certain members of the class, are known to be the ultimate carcinogens (LaVoie et al. 1982). Conjugation with glutathione or glucuronic acid, and reduction to tetrahydrotetrols are important detoxification pathways. Metabolism of naphthalene resulted in the formation of 1,2-naphthoquinone, which induced cataract formation and retinal damage in rats and rabbits.

Excretion of benzo(a)pyrene or dibenzo(a,h)anthracene residues was reported to be rapid, although quantitative data were not located (EPA 1979b). Excretion occurred mainly via the feces, probably largely due to biliary secretion (Schlede et al. 1970a, 1970b). The EPA (1980a) concluded that accumulation in the body tissues of PAHs from chronic low level exposure would be unlikely.

A.V.95.2 Noncancer Toxicity

Oral noncancer toxicity data are available for acenaphthene, anthracene, fluoranthene, fluorene, and naphthalene. Newborn infants, children, and adults exposed to naphthalene by ingestion, inhalation, or possibly by skin contact developed hemolytic anemia with associated jaundice and occasionally renal disease (EPA 1979c). In a 13-week gavage study in rats, treatment with 50 mg naphthalene/kg, 5 days/week for 13 weeks (35.7 mg/kg/day) induced no effects; higher doses presumably reduced the growth rate (National Toxicology Program (NTP) 1980). Application of an uncertainty factor of

1000 yielded a provisional RfD for chronic oral exposure of 0.04 mg/kg/day (EPA 1992b). The very mild effect (decreased growth rate) apparently observed at higher doses suggests that the RfD is very conservatively protective.

Acenaphthene appears to be a mild hepatotoxicant, and possibly a nephrotoxicant, in rodents (EPA 1994). In a comprehensive 90-day toxicity study in mice, gavage treatment with 175 mg/kg/day was an NOAEL; liver weight changes accompanied by hepatocellular hypertrophy and elevated cholesterol levels occurred in mice treated with 350 or 700 mg/kg/day (EPA 1989e). Oral treatment of rats and mice for 32 days with 2000 mg/kg/day resulted in weight loss and mild liver and kidney lesions (Knobloch et al. 1969). The EPA (1993a) verified a chronic oral RfD for acenaphthene of 0.06 mg/kg/day based on an NOAEL for liver effects in a subchronic gavage study in mice and an uncertainty factor of 3000. An uncertainty factor of 3000 was used with factors of 10 each for inter- and intraspecies variation and to expand from subchronic to chronic exposure, and a factor of 3 to reflect gaps in the database, namely lack of adequate data in a second species and lack of developmental and reproductive data. Confidence in the database was low because of the data gaps. Confidence in the critical study was low because the effects were considered adaptive, rather than adverse, which implies that the RfD is extremely conservative. The EPA (1992b) presented a provisional subchronic oral RfD of 0.6 based on the same NOAEL and an uncertainty factor of 300. Target organs for acenaphthene include the liver and kidney.

The toxic potency of anthracene appears to be very low. In a chronic study in rats, doses of 5 to 15 mg/rat (16 to 48 mg/kg/day) via the diet had no effect on longevity or gross or histopathologic appearance on unspecified tissues (Schmahl 1955). Gavage treatment of mice with 1000 mg/kg/day for at least 90 days had no effects on a comprehensive range of toxicologic parameters (EPA 1989f). The NOEL of 1000 mg/kg/day in mice and an uncertainty factor of 3000 (10 each for inter- and intraspecies variation, and 30 for the use of a subchronic study and an incomplete database) yielded a verified RfD for chronic oral exposure of 0.3 mg/kg/day (EPA 1994). The EPA (1992b) presented a provisional subchronic oral RfD of 3 mg/kg/day based on the same NOEL and an uncertainty factor of 300. The data were inadequate to define target organs for the toxicity of anthracene.

Fluoranthene appears to be toxic to the liver, kidney, and blood. In a comprehensive 13-week gavage study in mice, 125 mg/kg/day was an NOAEL and 250 mg/kg/day was an LOAEL (EPA 1988c). The verified chronic oral RfD for fluoranthene is 0.04 mg/kg/day, based on the NOAEL in a

comprehensive 13-week gavage study of 125 mg/kg/day in mice and an uncertainty factor of 3000 (EPA 1994). The uncertainty factor of 3000 includes factors of 10 each for inter- and intraspecies variation, and a factor of 30 to expand from subchronic to chronic exposure and to reflect an incomplete database. A provisional subchronic oral RfD of 0.4 mg/kg/day was derived from the same NOAEL and an uncertainty factor of 300. The liver, kidney, and blood appear to be the target organs for the toxicity of fluoranthene.

The critical effects of oral exposure to fluorene appear to be hemolytic anemia and CNS effects. In mice treated by gavage for 13 weeks, 125 mg/kg/day was an NOAEL and 250 mg/kg/day was an LOAEL (EPA 1989g). A verified chronic oral RfD for fluorene of 0.04 mg/kg/day was based on the NOAEL of 125 mg/kg/day for hemolytic anemia in mice (EPA 1994). An uncertainty factor of 3000 was used with factors of 10 each for inter- and intraspecies variation and to expand from subchronic to chronic exposure, and a factor of 3 to reflect gaps in the database. The EPA (1992b) presented a provisional subchronic oral RfD of 0.4 mg/kg/day based on the same NOAEL and an uncertainty factor of 300. The target organs of fluorene toxicity are the erythrocyte and the CNS.

Newborn infants, children, and adults exposed to naphthalene by ingestion, inhalation, or possibly by skin contact developed hemolytic anemia with jaundice and, occasionally, renal disease (EPA 1980a). In a 13-week gavage study in rats, treatment with naphthalene reduced the growth rate (EPA 1992b). Application of an uncertainty factor of 1000 to the rat NOEL yielded a provisional RfD for subchronic and chronic oral exposure of 0.04 mg/kg/day (EPA 1992b). The erythrocyte and the kidney appear to be the target organs for the toxicity of naphthalene.

Mild kidney lesions appear to be the critical effects of pyrene. In mice treated by gavage for 13 weeks, 75 mg/kg/day was an NOAEL and 125 mg/kg/day was an LOAEL (EPA 1989h). Even in mice treated with 250 mg/kg/day the lesions were considered minimal to mild. The EPA (1993a) verified a chronic oral RfD for pyrene of 0.03 mg/kg/day based on the NOAEL in mice and an uncertainty factor of 3000 (10 each for inter- and intraspecies variation and to expand from subchronic to chronic exposure, and a factor of 3 to reflect gaps in the database). The EPA (1992b) presented a provisional subchronic oral RfD of 0.3 mg/kg/day based on the same NOAEL and an uncertainty factor of 300. The kidney is the target organ for the toxicity of pyrene.

A.V.95.3 Carcinogenicity

The PAHs are ubiquitous, being released to the environment from anthropogenic as well as from natural sources (ATSDR 1987). Benzo(a)pyrene is the most extensively studied member of the class, inducing tumors in multiple tissues of virtually all laboratory species tested by all routes of exposure. Although epidemiology studies suggested that complex mixtures that contain PAHs (coal tar, soots, coke oven emissions, cigarette smoke) are carcinogenic to humans (EPA 1994), the carcinogenicity cannot be attributed to PAHs alone because of the presence of other potentially carcinogenic substances in these mixtures (ATSDR 1987). In addition, recent investigations showed that the PAH fraction of roofing tar, cigarette smoke, and coke oven emissions accounted for only 0.1 to 8 percent of the total mutagenic activity of the unfractionated complex mixture in Salmonella (Lewtas 1988). Aromatic amines, nitrogen heterocyclic compounds, highly oxygenated quinones, diones, and nitrooxygenated compounds, none of which would be expected to arise from in vivo metabolism of PAHs, probably accounted for the majority of the mutagenicity of coke oven emissions and cigarette smoke. Furthermore, coal tar, which contains a mixture of many PAHs, has a long history of use in the clinical treatment of a variety of skin disorders in humans (ATSDR 1987).

Because of the lack of human cancer data, assignment of individual PAHs to EPA cancer weight-of-evidence groups was based largely on the results of animal studies with large doses of purified compound (EPA 1994). Frequently, unnatural routes of exposure, including implants of the test chemical in beeswax and trioctanoin in the lungs of female Osborne-Mendel rats, intratracheal instillation, and subcutaneous or intraperitoneal injection, were used. Of the PAHs of concern, no EPA cancer weight-of-evidence group classification was provided for acenaphthene (EPA 1994). Anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, and naphthalene were classified in Group D (not classifiable as to carcinogenicity to humans), and benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were classified in Group B2 (probable human carcinogens).

The EPA (1993a) verified a slope factor for oral exposure to benzo(a)pyrene of 7.3 per mg/kg/day, based on several dietary studies in mice and rats. Neither verified nor provisional quantitative risk estimates were available for the other PAHs in Group B2. The EPA (1980a) promulgated an ambient water quality criterion for "total carcinogenic PAHs," based on an oral slope factor derived from a study with benzo(a)pyrene, as being sufficiently protective for the class. Largely because of this

precedent, the quantitative risk estimates for benzo(a)pyrene were adopted for the other carcinogenic PAHs when quantitative estimates were needed.

Recent reevaluations of the carcinogenity and mutagenicity of the Group B2 PAHs suggest that there are large differences between individual PAHs in cancer potency (Krewski et al., 1989). Based on the available cancer and mutagenicity data, and assuming that there is a constant relative potency between different carcinogens across different bioassay systems and that the PAHs under consideration have similar dose-response curves, Thorslund and Charnley (1988) derived relative potency values for several PAHs. A more recent Relative Potency Factor (RPF) scheme for the Group B2 PAHs was based only on the induction of lung epidermoid carcinomas in female Osborne-Mendel rats in the lung-implantation experiments (Clement International 1990). The most defensible RPFs and the associated oral and inhalation slope factors are presented in Table A.4-5.

A.V.96 POLYCHLORINATED BIPHENYLS

A.V.96.1 Noncancer Toxicity

Epidemiologic studies of women in the United States associated oral PCB exposure with low birth weight or retarded musculoskeletal or neurobehavioral development of their infants (ATSDR 1991). Oral studies in animals established the liver as the target organ in all species, and the thyroid as an additional target organ in the rat. Effects observed in monkeys included gastritis, anemia, chloracne-like dermatitis, and immunosuppression. Oral treatment of animals induced developmental effects, including retarded neurobehavioral and learning development in monkeys. Neither subchronic nor chronic oral RfD values were located for any of the aroclors.

Occupational exposure to PCBs was associated with upper respiratory tract and ocular irritation, loss of appetite, liver enlargement, increased serum concentrations of liver enzymes, skin irritation, rashes and chloracne, and, in heavily exposed female workers, decreased birth weight of their infants (ATSDR 1991). Concurrent exposure to other chemicals confounded the interpretation of the occupational exposure studies. Laboratory animals exposed by inhalation to Aroclor-1254 vapors exhibited moderate liver degeneration, decreased body weight gain and slight renal tubular degeneration. Neither subchronic nor chronic inhalation RfC values were available.

Target organs for PCBs include the skin, liver, fetus, and neonate.

A.V.96.2 Carcinogenicity

The EPA (1993a) classifies the PCBs as EPA cancer weight-of-evidence Group B2 substances (probable human carcinogens), based on inadequate data in humans and sufficient data in animals. The human data consist of several epidemiologic occupational and accidental oral exposure studies with serious limitations, including poorly quantified concentrations of PCBs and durations of exposure, and probable exposures to other potential carcinogens.

The animal data consist of several oral studies in rats and mice with various aroclors, kanechlors, or clophens (commercial PCB mixtures manufactured in the United States, Japan and Germany, respectively) that reported increased incidence of liver tumors in both species (EPA 1994).

The EPA (1993a) presents a verified oral slope factor of 7.7 per mg/kg/day for all PCBs based on liver tumors in rats treated with Aroclor-1260.

A.V.97 RADIUM

A.V.97.1 Noncancer Toxicity

No toxic effects of exposure to radium are documented and EPA has not developed an RfD for radium; therefore, the health hazard for radium is associated with potential radiocarcinogenic effects.

A.V.97.2 Carcinogenicity

Four isotopes of radium occur naturally, Ra-223 (actinium series), Ra-224 and Ra-228 (thorium series), Ra-226 (uranium series); therefore, radium is ubiquitous in the earth's crust and common in groundwater, mineral deposits, soil, food products, and common building materials. Ra-226 has the longest half-life (1600 years) and decays by alpha particle emission. Ra-223 and Ra-224 are also alpha-particle emitters, and Ra-228 is a beta-particle emitter. The primary uses of radium have been for manufacturing luminous dials and instrument faces and for internal radiation therapy. Thus, the bulk of the human data on effects from intake of radium are available from studies of radium dial painters and medical patients administered therapeutic doses of radium.

Radium introduced into the body generates decay products including gaseous isotopes of radon. Rn-222 generated in the body persists long enough that it easily diffuses into the bloodstream and accumulates in the sinuses of the head, significantly reducing the alpha dose to the radium

accumulating tissues but increasing the dose in the sinus regions of the body. Ultimately the bone tissues are the principal site of radium accumulation because of the similar chemical behavior of radium compared to calcium (National Academy of Sciences [NAS] 1988). In the bone tissues the radium is initially deposited in endosteal bone surface tissue. There is then a redistribution to the bone volume where the radium resides with a long retention time.

A.V.97.3 Dose Response Data - Human and Animal

The following discussion of data concerning the health effects of exposure to radium is summarized from the report of the Biological Effects of Ionizing Radiation (BEIR) IV Committee on radon and other alpha emitters (NAS 1988). The epidemiological studies of humans were initially motivated by the appearance of cancer and other effects associated with occupational exposures to Ra-224, Ra-226, and Ra-228 (radium dial painters). In the dial painting context, there was the potential to ingest significant quantities of radium that were known to be harmful. The second most significant study group comprised the ankylosing spondylitis patients, who were administered doses of radium solutions for therapeutic reasons. The focus of most studies is on bone cancer, cancer of the paranasal sinuses, and cancer of the mastoid air cells because the association of these effects with radium exposure is well known.

Although epidemiological investigations have documented the association between radium exposure and carcinogenic effects, there has been considerable debate over the dose-response relationship involved. Bone cancer incidence has been plotted against a variety of parameters that represent a measure of radium exposure such as absorbed dose to the skeleton, pure radium equivalents, and cumulative rad-years (Evans 1966). The results indicate a nonlinear relationship fits the data. A separate analysis of the same bone cancer induction data confirms the finding of a nonlinear fit (Mays and Lloyd 1972). The conclusion from both of these analyses is that a linear nonthreshold relationship is likely to significantly overpredict cancer incidence at low doses. Later reassessments present a linear-quadratic-exponential dose-response relationship (Rowland et al. 1971, 1978a, 1978b, 1983) and a dependence of incidence on the square of radium intake normalized to body weight (Marshall and Groer 1977).

Two extensive studies of ankylosing spondylitis patients treated in Germany with solutions of Ra-224 are most noteworthy. In the first, a 900-patient cohort treated with a Ra-224 colloid during the period from 1946 to 1951 with a follow-up period for more than 30 years revealed bone cancer

incidence associated with the high absorbed doses from the therapeutic treatments (Spiess 1969; Spiess and Mays 1970, Mays 1973). In the second, a cohort of about 1400 patients treated with small doses of Ra-224 for ankylosing spondylitis showed a similar association between dose and cancer induction (Spiess 1969; Spiess and Mays 1970; Mays 1973). The analyses are consistent with a variety of dose-response relationships; however, none could be disproved because of the scatter in the data.

Cancers of the paranasal sinuses and the mastoid air cells have been associated with exposure to Ra-226 and Ra-228 since the 1930s (Martland 1939). These effects were initially seen in the radium dial painters, who received high absorbed doses from the quantities of radium they ingested. Excess incidence is quite evident in comparison to the natural incidence, which is very low. After exposure to radium, these types of cancers are expressed later than bone cancers (Evans et al. 1969; Finkel et al. 1969; Rowland et al. 1971; Rundo et al. 1986).

As discussed previously, Rn-222 generated in the body persists long enough that it easily diffuses into the bloodstream and accumulates in the sinuses of the head, significantly increasing the dose in the sinus regions of the body. Studies of cancers of the sinuses and mastoid cells conducted in beagle dogs injected with a variety of alpha-emitting radionuclides reveal excess incidence of these cancers (Schlenker 1980). Not all of the tumors were induced by alpha emitters that produce a gaseous decay product; therefore, a gaseous decay product is not essential to induction. Nevertheless, the risk of these cancers from Ra-226 and its decay products (including Rn-222) is considered significantly greater than from other alpha-emitting radionuclides.

The incidence of leukemia and other blood diseases is linked to radium ingested among the radium dial painters. Development of anemias and leukopenia (low leukocyte count) has been demonstrated in the dial painters (Martland 1931). Evans' study (Evans 1966) included leukemia and anemia as possible effects of radium accumulation in the body. Finkel (Finkel et al. 1969) found cases of leukemia and aplastic anemia in studies of the radium dial painters exposed during the period from 1918 to 1933. Among a cohort of 634 female dial painters first employed before 1930, three deaths attributable to leukemia were found (Polednak 1978). This exceeds expectations because the natural incidence of leukemia is very low. An epidemiological study of 1285 women employed as dial painters before 1930 and 1185 employed between 1930 and 1949 (when radium contamination and exposures were much lower) revealed standard mortality ratios of 73 and 221, respectively (Stebbings et al. 1984). However, the most comprehensive and definitive study of U.S. dial painters includes all

workers employed before 1970 (Spiers et al. 1983). Among the worker cohort of 2940 persons, 10 cases of leukemia were found. The expected number of natural cases for this group would be 9.2 cases. The study concludes that the incidence in the cohort does not differ significantly from natural incidence (Spiers et al. 1983). In summary, the accumulation of very high levels of radium is associated with severe anemias and leukemia (NAS 1988). However, at lower levels of accumulation, such as those experienced by the majority of U.S. radium dial painters, especially in later years, the accumulated radium does not appear to significantly increase the risk of leukemia (NAS 1988).

The BEIR IV Committee presents a cancer risk factor of 200E-06 per rad for bone sarcomas from protracted exposure to radium in its report on radon and other alpha emitters (NAS 1988).

A.V.98 RADON AND PROGENY

A.V.98.1 Noncancer Toxicity

There are no known toxic effects of exposure to radon gas or its short-lived progeny. However, short-lived radon progeny decays to long-lived lead (Pb) progeny. Because lead is a chemical toxicant, significant accumulations of lead would pose a potential source of lead for exposure pathways to receptors.

A.V.98.2 Carcinogenicity

Exposure to air contaminated with radon gas and associated airborne progeny has been linked to increased risk of lung cancer. The risk is attributed to inhalation of the short-lived progeny of radon that are attached to particulates, which lodge in the lung passages and produce a radiation dose that causes lung cancer. Radon progeny that do not lodge in the lung passages are exhaled, and do not deliver a radiation dose. The induction of lung cancer results when the bronchial epithelium of the lung passages is exposed to alpha particles emitted from decaying radon progeny (e.g., Po-214 and Po-218) lodged in the lung passages.

Three isotopes of radon are of potential concern, one associated with each of the three natural decay series. Rn-222, Rn-220, and Rn-219 are members of the uranium, thorium, and actinium decay series, respectively. Rn-222 (half-life 3.82 days) is the isotope of primary concern because its half-life and mobility as an inert gas facilitate its migration to outdoor and indoor areas, thus potentially exposing receptors to elevated concentrations of Rn-222 and its short-lived progeny. Rn-220 (half-life

55.6 seconds) and Rn-219 (half-life 3.96 seconds) are generally of less concern because their very short half-lives often result in decay before there is sufficient opportunity for migration of the gas and accumulation of elevated quantities where receptors may be exposed. For example, all three isotopes of radon may be of concern in air in buildings that contain the appropriate parent radionuclides (in the form of surface contamination or drummed material for example). However, Rn-220 and Rn-219 are not expected to be released from a source such as the K-65 silos because their shorter half-lives would cause them to decay before migrating out of the waste matrix or out of the containment provided by the silos.

A.V.98.3 Dose Response Data - Human and Animal

The following discussion regarding the health effects of exposure to radon and radon progeny is summarized from the report of the BEIR IV Committee on radon and other alpha emitters (NAS 1988). The radiological effect of concern from exposure is lung cancer.

The lung cancer hazard associated with working in underground mines was first recognized by Harting and Hesse in 1879 as a result of autopsy studies of European miners (Harting and Hesse 1879). The most important human populations studied with regard to radon progeny exposure are the underground miners exposed to widely differing concentrations of airborne Rn-222 progeny in mines (National Council on Radiation Protection and Measurements [NCRP] 1984). The lung cancer mortality risk estimates for radon progeny exposure published by the BEIR IV Committee (NAS 1988) are based on an epidemiological study of these underground miner populations. The assessment of the risk from exposure to radon progeny by the BEIR IV Committee represents the most recent comprehensive examination of estimated health risks associated with exposure.

The BEIR IV Committee relies heavily on data from four principal studies of miners: Ontario uranium miners, Saskatchewan uranium miners, Swedish metal miners, and Colorado Plateau uranium miners. Underground miners exposed to radon progeny (in the mines) have an increased risk of lung cancer as demonstrated in these epidemiological study populations. Animals experimentally exposed to airborne radon progeny also develop lung cancers. Animal studies have provided information on the dose response relationship and the effects of variation in exposure rate, physical characteristics of the lung, and air quality to supplement the information available from the human epidemiological studies. Thus, both human epidemiological data and animal experimental data indicate that exposure

to radon progeny induces lung cancer and describe the relationship between exposure and health effect as a function of influencing factors.

In its study of the human epidemiological data, the BEIR IV Committee has reevaluated the primary data (e.g., exposure histories and mortality) for the four principal epidemiological study groups of underground miners exposed to radon progeny. From this reevaluation, the BEIR IV Committee has developed estimates of the risk of fatal lung cancer. The BEIR IV lifetime risk estimate from lifetime exposure to radon progeny is 350E-06 excess fatal lung cancers per cumulative working level month (WLM) exposure. The WLM is defined as cumulative exposure to an airborne concentration of short-lived radon progeny (equal to one working level) for a period of one working month. It must be noted that this estimate is quantified as fatal lung cancer risk, is based primarily on epidemiological studies of humans, and is expressed per unit cumulative exposure to progeny (WLM^{-1}). The EPA slope factors address cancer incidence, are based on calculated radiation doses to organs and tissues, and are expressed per unit radioactivity intake (pCi^{-1}). Thus, the EPA and BEIR IV risk estimates are not directly comparable. The EPA cancer slope factors are used for assessments of risk attributable to radon and radon progeny exposure. It is also noted that EPA adopted a nominal risk estimate of 360E-06 per WLM for use in the National Emission Standards for Hazardous Air Pollutants (NESHAP) (EPA 1989a). This estimate is based primarily on EPA's consideration of the BEIR IV assessment; however, EPA did average radon risk estimates derived from BEIR IV and International Commission on Radiation Protection (ICRP) models to calculate the estimate of 360E-06 per WLM.

Although the carcinogenicity of radon progeny is established and the hazards of exposure during mining are well recognized, the hazards of exposure in other environments have not yet been adequately quantified (NAS 1988). A few exploratory epidemiological studies of lung cancer risk associated with radon progeny exposure in homes have been conducted; however, the results are inconclusive and inadequate for the purpose of risk estimation (NAS 1988).

The model developed by the BEIR IV Committee may be used to estimate risks under other environmental conditions to which persons may be routinely exposed; however, it must be recognized that the BEIR IV Committee's model is based on epidemiological evaluations of occupational exposure conditions in underground mines. Therefore, assumptions must be made regarding the similarity of exposed populations, levels of exposure, and factors such as cigarette smoking when

using the model for nonoccupational conditions such as in indoor home environments and other environmental settings.

Using the risk factor from the BEIR IV report (NAS 1988) of 350E-06 WLM^{-1} for lung cancer mortality from inhalation of Rn-222 and progeny, and by assuming 51.5 working months (WM) per year (8760 hr/yr divided by 170 hrs worked/month), 100 pCi radon/liter air, short-lived Rn-222 progeny present in 50 percent equilibrium, and an inhalation rate of 20 m^3 day for 365 days/year, one can derive a lung cancer mortality risk factor of 1.2E-11 per pCi. The EPA cancer slope factor from the HEAST publication for inhalation of Rn-222 plus progeny is 7.7E-12 per pCi (EPA 1992b). It must be noted that the BEIR IV risk estimate pertains to lung cancer mortality while the EPA cancer slope factors all pertain to cancer induction rather than cancer fatality.

A.V.99 RUTHENIUM-106

This compound is currently under investigation. Little or no information is available at this time; however, as information becomes available, it will be incorporated into future baseline risk assessments and CRAREs. The EPA has derived slope factors, which are presented in Table II.1-1.

A.V.100 SELENIUM

A.V.100.1 Noncancer Toxicity

Selenium is a nutritionally essential trace element that is an integral part of the enzyme glutathione peroxidase and other proteins (Högberg and Alexander 1986). The National Research Council (1989) recommended dietary allowances (RDAs) for humans range from 10 to 75 μg/day. Chronic ingestion of 5 mg/day (0.071 mg/kg/day, assuming humans weigh 70 kg) induced selenosis in humans, characterized by abnormal hair and nail formation (Högberg and Alexander 1986). Effects in domestic grazing animals exposed to high levels of selenium included emaciation, lameness, and loss of hair and hooves. Occupational exposure to selenium fume or various selenium compounds was associated with intense ocular and respiratory tract irritation, chemical pneumonia, skin rashes, garlic odor to the breath, metallic taste in the mouth, and various socio-psychological effects (ACGIH 1986). The EPA (1993a) presented a verified RfD of 0.005 mg/kg/day for chronic oral exposure to selenourea, based on effects in humans exposed to selenium in high selenium areas. An uncertainty factor of 3 was used. The EPA (1992b) presented the same value as a provisional subchronic oral RfD. The principal target organs for oral exposure to selenium are the skin, including the nails and

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hair, and, in animals, the hooves and joints. Targets for inhalation or dermal exposure include the skin and mucous membranes of the eyes and respiratory tract, and possibly the CNS.

A.V.100.2 Carcinogenicity

An impressive body of data indicates that selenium exerts an anticarcinogenic effect (Högberg and Alexander 1986). In laboratory animals, selenium supplementation decreased the incidence of chemical-induced cancers. In humans, the incidence of lymphomas and cancers of the breast, digestive tract, and lung were lower in geographic areas with high soil selenium levels. Occupational data suggest that selenium may protect against lung cancer. Several animal tests with various deficiencies in design and conduct equivocally associated exposure to selenium with cancer induction. In a well controlled oral experiment, selenium sulfide was associated with an increase in the incidence of liver tumors in rats, and with liver and lung tumors in mice. On the basis of this study, EPA (1993a) classified selenium sulfide a cancer weight-of-evidence Group B2 compound (probable human carcinogen), but declined to derive quantitative risk estimates. Selenium and other selenium compounds were classified in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans) (EPA 1994). Quantitative risk estimates are not derived for Group D substances.

A.V.101 SILVER

A.V.101.1 Pharmacokinetics

The GI absorption of ingested silver in animals was estimated at ≤ 10 percent; however, absorption of 18 percent was estimated for one human subject given silver acetate (Fowler and Nordberg 1986). Highest tissue levels are located in the liver; lower levels are located in the lungs, brain, spleen, bone marrow, muscle, and skin (Fowler and Nordberg 1986; Goyer 1991). Excretion is virtually entirely through the bile. The excretion kinetics appear to be species- and organ-dependent. In humans, the apparent half-life for silver in the liver is approximately 50 days. Silver in skin also appeared to have a long half-life (not quantified).

A.V.101.2 Noncancer Toxicity

Silver compounds have been used in dentistry, medicinally in the treatment of burns, as a local disinfectant, and as a drinking water disinfectant (Fowler and Nordberg 1986). The classical syndrome of toxicity, called argyria, is a blue-gray to nearly black discoloration of areas of the skin

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or the viscera resulting from deposition of microscopic granules of silver compounds in the affected tissues. Argyria results from occupational (inhalation), parenteral, or oral exposure. The EPA (1993a) derived an RfD of 0.005 mg/kg/day for chronic oral exposure based on a 2 to 9 year human i.v. study, where a total i.v. dose of 1g metallic silver (in the form of 4g silver arsphenamine) resulted in minimal observed effects (argyria) in patients. This total i.v. dose for metallic silver was converted into an oral dose (LOAEL) of 0.014 mg/kg/day. The chronic oral RfD was derived by dividing the LOAEL by an uncertainty factor of 3, which was applied to account for minimal effects in a subpopulation that has exhibited an increased propensity for the development of argyria.

A.V.101.3 Carcinogenicity

The EPA (1993a) classifies silver in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans). The human data consist of no evidence in the literature of cancer despite frequent medical use of silver compounds. The animal data are limited to studies of implanted silver foil or injected metallic silver that provided unconvincing indications of a carcinogenic response relevant to humans.

A.V.102 STRONTIUM

Strontium is a naturally-occurring element that is very similar to calcium in structure. Strontium-90 (Sr-90) is one of the most common radioisotopes of strontium. Sr-90 is a pure beta-particle emitter that is in equilibrium with its decay product, yttrium-90, also a beta-particle emitter. The half-life of Sr-90 is approximately 29 years. Sr-90 is a product of nuclear fission. Much of the Sr-90 in the environment is a result of fallout from atmospheric testing of nuclear weapons. The estimated global inventory of Sr-90 (as a result of fallout) at the end of 1980 was approximately 1E07 Ci (United National Scientific Committee on the Effects of Atomic Radiation [UNSCEAR] 1982). Since the mid-1970s nuclear power reactors and fuel reprocessing plants have produced a large inventory of Sr-90 as a result of their operations and waste generation (NCRP 1991). Because of the potential for accidents, this source of Sr-90 has become of greater concern than fallout from atmospheric testing. Sr-90 sources have been used in medical therapy, polymerization of plastic, synthesis of organic compounds, and sterilization of surgical and medical supplies.

A.V.102.1 Pharmacokinetics

Because of strontium's chemical similarity to calcium, the ultimate site of accumulation is bone tissue. When strontium is taken into the body, an average of 30 percent is absorbed from the GI tract (NCRP

1991). The portion that is absorbed is distributed to either bone volume; plasma, extracellular fluid, soft-tissue, and bone surface; or is eliminated from the body. Early studies found that although strontium and calcium are chemically similar, biological systems do not use strontium as effectively as they do calcium, i.e., the systems discriminate between strontium and calcium.

A.V.102.2 Chemical Toxicity

Several papers were located in the literature which address the question of noncancer toxicity of strontium. Storey (1961) performed an experiment on young and adult rats. He fed young (40 to 60 g) and adult (200 to 250 g) female rats diets with varying strontium levels. For young rats, the strontium doses corresponded to 190, 380, 750, 1000, 1500, and 3000 mg/kg/day, and for adult rats 95, 190, 375, 750, and 1500 mg/kg/day. Young rats were found to be affected more severely at lower dietary strontium levels than were adult rats. In young rats, at 380 mg/kg/day, the epiphyseal plate was irregular and slightly widened; however, at 750 mg/kg/day, this plate was severely irregular. Changes observed with doses at 380 mg/kg/day and higher were inhibition of calcification, as evidenced by increasing width of epiphyseal cartilage, presence of uncalcified bone matrix, and decreased ash weight of bone. In adults rats, the first obvious bone change occurred at the 750 mg/kg/day dose level and included slightly wider than normal epiphyseal cartilage plate that was irregularly increased in length and width. Based on these results, an NOAEL of 190 mg/kg/day and an LOAEL of 380 mg/kg/day were identified for young rats. For adult rats, an NOAEL of 375 mg/kg/day and an LOAEL of 750 mg/kg/day were given.

Marie et. al. (1985) administered stable strontium to male rats. The purpose of the study was to determine the effect of low doses of stable strontium on mineral homeostasis and bone histology. The authors concluded that an oral dose lower than 633 mg/kg-day did not produce adverse effects on body growth or bone mineralization. Rats with a dose of 633 mg/kg-day showed signs of increased mineralization lag time; excessive osteoid thickness associated with a decline in the rate of calcification, which resulted in slow growth rate; and a decreased double-labeled osteoid surface, which resulted in defective long bone growth. This study identified an NOAEL of 525 mg/kg/day and an LOAEL of 633 mg/kg/day.

Pertinent data to derive an oral RfD based on the toxicity of stable strontium in humans were not located in the available literature.

A.V.102.3 Carcinogenicity

NCRP Report No. 110 (1991) cites a number of papers that address the radiocarcinogenicity of strontium. These papers were published by different authors and the experiments were conducted in different laboratories on different animals such as mice, rats, cats, dogs, and monkeys. The experiments have shown that high radiation doses to skeletal tissues from radioactive strontium (Sr-90 or Sr-89) would produce bone sarcomas, carcinomas of the nasopharynx and head sinuses, squamous cell carcinomas in tissues within the mouth, or hematopoietic neoplasia (leukemia) and dysplasia.

There is clear evidence in these experiments that the dosage pattern, the total dose, and the age at irradiation can have a significant effect on the outcome of exposure. However, lower doses of radiation from Sr-90 produced a very low incidence, or not at all, from this radionuclide (i.e., no bone sarcomas were seen at individual average skeletal doses in a study conducted on dogs with doses between 1 and 18 Gray (Gy).

There have been no cases of human exposure to Sr-90 on record which would provide direct guidance concerning the kinds of effects to be expected or their frequency. Attempts to study effects due to Sr-90 present in fallout were beset by two difficulties: (1) No criteria were known that would distinguish unambiguously the pathological effects due to Sr-90 from those occurring naturally, (2) The excess of incidence to be expected at world-wide fallout levels was so low that only studies on very large populations could even potentially yield a statistically significant result. Such studies have been attempted for humans, but careful evaluation of the statistics confirms the expectation that whatever excess of incidence may be present is masked by variation in incidence among the population groups studied, differences in recording data, and normal statistical fluctuations of the data for such groups. Thus, no statistically significant excess of biological effects due to Sr-90 exposure at levels characteristic of world-wide fallout has been demonstrated.

Lacking direct data on humans with Sr-90, one can attempt to estimate hazard on the basis of experience in man with other forms of radiation or on the basis of dose effect relations seen in experimental animals exposed to Sr-90. Thus, the observation that bone sarcomas have been produced in humans by skeletally-deposited radium and that leukemias have been produced by exposure to x-rays and atomic bomb radiation, suggest that significant skeletal doses from Sr-90 could produce bone sarcomas and leukemias in people.

A.V.103 STYRENE

A.V.103.1 Noncancer Toxicity

Inhalation exposure of humans to styrene was associated with unspecified unpleasant symptoms and neurological impairment (ACGIH 1986). Subchronic oral exposure of animals induced liver and kidney lesions and hematologic and histopathologic evidence of hemolysis (EPA 1994). The EPA (1993a) presented a verified chronic oral RfD of 0.2 mg/kg/day, based on an NOAEL for effects on erythrocytes and the liver in dogs and an uncertainty factor of 1000. The EPA (1992b) presented a provisional subchronic RfD of 2 mg/kg/day based on the same NOAEL and an uncertainty factor of 100. The EPA (1992b) also presented provisional inhalation RfC values of 1 mg/m^3 for chronic exposure and 10 mg/m^3 for subchronic exposure, based on an NOAEL for CNS effects in humans exposed for 8 hours. An uncertainty factor of 30 was used for derivation of the chronic RfC and an uncertainty factor of 10 was used for the subchronic RfC. The chronic and subchronic RfC values are equivalent to 0.3 mg/kg/day and 3 mg/kg/day, respectively, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. The principal target organs for inhalation exposure to styrene appear to be the CNS. Target organs for oral exposure include the liver, kidney, and erythrocyte.

A.V.103.2 Carcinogenicity

An appropriate cancer weight-of-evidence classification for styrene has not yet been decided by the EPA (1992h). Therefore, no classification and no quantitative estimates are presented.

A.V.104 TECHNETIUM

Technetium (Tc) is a radioactive element, with three isotopes having half-lives of more than 1 year. Tc-99 and Tc-96 isotopes are used in medicine and metallurgy. Tc-99 is a beta-emitting radionuclide that is produced with a high yield during the nuclear fission of U-235 and plutonium-239 (Pu-239). Of these, only Tc-99 is of potential concern in Operable Unit 5. It is quite mobile in the environment and tends to concentrate in the food chain.

A.V.104.1 Pharmacokinetics

The human effects data are primarily based on experimental results from volunteer subjects who received one dose of either Tc-99 or Tc-96 followed by 8 to 10 days of urine and fecal sampling as well as whole-body counting. It is found that the technetium accumulates in the bladder within 10

minutes after an injection. After two hours the technetium is localized primarily in the salivary-thyroid glands, stomach, liver, and bladder.

A.V.104.2 Noncancer Toxicity

Of the brief information available on the toxicity of Tc-99, it appears that it is quite toxic to plants. Gerber (1989) studied the toxic effects of Tc-99 on rats; he concluded that a critical organ could be the thyroid because of its preferential accumulation of technetium. He fed the rats diets containing 10 μg of Tc-99 per gram of food (10 μg/g) and 50 μg/g. It was found that thyroids, followed by kidneys, displayed the highest activities. Considerable amounts of technetium were also found in the liver, spleen, lung, and pancreas; the muscle and brain contained little technetium. The radiation dose administered to the thyroid after feeding 10 μg/g of Tc-99 for 13 weeks was estimated at 10 to 20 Gy. This dose was believed to be at the borderline where effects of radiation may be expected. Therefore, the question of chemical toxicity damage at higher doses of Tc-99 becomes more pronounced.

The authors concluded that in view of the large amounts of technetium to which the animals were exposed, it is unlikely that technetium could represent a significant nonstochastic risk to humans under any condition imaginable in the context of radiation protection. Earlier studies in rats (Van Bruwaene et al. 1986) have demonstrated that damage to the thyroid or reduction in fertility is detectable at a concentration of 10 μg of Tc-99 per gram of food, but not a concentration of 1 μ\g/g.

Coffey and Hayes have studied the radiation dosimetry and chemical toxicity of Tc-99. They injected mice via the tail vein with 210 to 360 mg of Na ^{99}Tc O_4 per kilogram of body weight, they found that the intravenous $LD_{50/30}$ dose of Na ^{99}Tc O_4 in mice is 240 mg/kg. Earlier studies predicted that a given chemical dose may be about a factor of 10 more toxic in humans than in mice. This means that 24 mg/kg would be the extrapolated $LD_{50/30}$ for Na ^{99}Tc O_4 in humans. Since $LD_{50/30}$ is the lethal dose to 50 percent of a population in 30 days, it is of course not an acceptable risk for occupational or environmental exposures.

Probably no more than 1 percent of the $LD_{50/30}$ dose would be an acceptable risk, i.e., 0.24 mg/kg. This is equal to 16.8 mg of Na ^{99}Tc O_4 in a 70-kg individual, or 151 μCi of Tc-99, which is less than 4 percent of the current annual limit intake (ALI) of 4000 μCi. The authors have concluded that the

chemical toxicity of Tc-99 may be more important than its radiation risk in the event of accidental intake of Tc-99.

A.V.104.3 Carcinogenicity

Data on the carcinogenicity of technetium were not located in literature. Gerber (1989) studied the histology of rats fed with 10 and 50 μg/g of Tc-99. Of the 24 animals studied, one case of papillary adenoma was found after treatment with 10 μg/g Tc-99. This, of course, is insufficient to prove the carcinogenic effect of technetium, and therefore more research is needed to study the cancerous effects of technetium.

A.V.105 1,1,2,2-TETRACHLOROETHANE

A.V.105.1 Noncancer Toxicity

Chronic oral exposure of laboratory animals to 1,1,2,2-tetrachloroethane was associated with liver and kidney effects (ATSDR 1989g). Acute occupational exposure to high levels was associated with CNS effects; prolonged exposure to more moderate levels was associated with GI disturbances and liver damage (ACGIH 1986). Inhalation exposure studies in animals confirm that 1,1,2,2-tetrachloroethane is highly hepatotoxic. Neither oral nor inhalation RfD or RfC values were located. The target organs for 1,1,2,2-tetrachloroethane are the liver, kidney, and the CNS.

A.V.105.2 Carcinogenicity

Oral treatment with 1,1,2,2-tetrachloroethane induced a highly significant dose-related increase in hepatocellular carcinomas in rats (ATSDR 1989g). Occupational data regarding carcinogenicity in humans are inadequate. The EPA (1993a) classifies 1,1,2,2-tetrachloroethane as a cancer weight-of-evidence Group C compound (possible human carcinogen), based on liver tumors in mice, and derived an oral slope factor of 0.2 per mg/kg/day. The same data serve as the basis for an inhalation unit risk of 5.8E-05 per $\mu g/m^3$, which is equivalent to 0.2 per mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg.

A.V.106 TETRACHLOROETHENE

A.V.106.1 Noncancer Toxicity

Occupational (inhalation and dermal) exposure to tetrachloroethene was associated with neurologic effects, beginning with incoordination and progressing to dizziness, headache, vertigo, and unconsciousness (ACGIH 1986). The EPA (1993a) presented a verified chronic oral RfD for tetrachloroethene of 0.01 mg/kg/day based on an NOAEL for liver toxicity in mice in a subchronic gavage study, and on an NOEL for depressed body weight gain in rats in a subchronic drinking water study. An uncertainty factor of 1000 was used. The EPA (1992b) presented a provisional subchronic oral RfD of 0.1 mg/kg/day based on the same NOEL and an uncertainty factor of 100. The CNS is the principal target organ for inhalation exposure and the liver is the principal target organ for oral exposure to tetrachloroethene.

A.V.106.2 Carcinogenicity

Inhalation exposure to tetrachloroethene induced mononuclear cell leukemia in rats, and inhalation or oral exposure induced hepatocellular carcinomas in mice (ATSDR 1988b). Occupational exposure data do not suggest a carcinogenic role for tetrachloroethene in humans (ACGIH 1986). Interpretation of the data regarding the carcinogenicity of tetrachloroethene is controversial, and the EPA (1992h) has not adopted a final position on the cancer weight-of-evidence classification or quantitative risk estimates for tetrachloroethene. For this reason, the cancer evaluation of tetrachloroethene was removed from the 1992 HEAST (EPA 1992b).

A.V.107 THALLIUM, SOLUBLE SALTS

A.V.107.1 Noncancer Toxicity

Thallium is highly toxic; acute ingestion by humans or laboratory animals induced gastroenteritis, neurological dysfunction, and renal and liver damage (Kazantzis 1986). Chronic ingestion of more moderate doses characteristically caused alopecia. Thallium was used medicinally to induce alopecia in cases of ringworm of the scalp, sometimes with disastrous results. In industrial (inhalation, oral, dermal) exposure, neurologic signs preceded alopecia, suggesting that the nervous system is more sensitive than the hair follicle. The EPA (1993a) presented verified chronic oral RfD values for several thallium salts (thallium acetate, thallium carbonate, thallium chloride, thallium nitrate, and thallium sulfate) based on increased incidence of alopecia and increased serum levels of liver enzymes

indicative of hepatocellular damage in rats treated with thallium sulfate for 90 days. An oral RfD for thallium alone, however, was not located. Target organs for thallium include the GI tract (acute exposure), nervous system, skin, kidney, and liver.

A.V.107.2 Carcinogenicity

Several thallium compounds (thallium oxide, thallium acetate, thallium carbonate, thallium chloride, thallium nitrate, thallium sulfate) were classified as cancer weight-of-evidence Group D substances (not classifiable as to carcinogenicity to humans) (EPA 1994). No weight-of-evidence classification was located for thallium alone.

A.V.108 THORIUM

A.V.108.1 Noncancer Toxicity

No toxic effects of exposure to thorium are documented and EPA has not developed an RfD for thorium; therefore, the health hazard for thorium is associated with potential radiocarcinogenic effects.

A.V.108.2 Carcinogenicity

Natural thorium is present in the earth's crust as a primordial element. The Th-232 isotope accounts for approximately 100 percent of the mass abundance of thorium; however, the radioactivities of other isotopes of thorium exist as members of the three natural decay series. The half-life of Th-232 is very long (approximately 10^{10} years), thus the specific activity is relatively low and the rate of decay is slow. Th-232 decays by alpha particle emission as do most of the progeny in the thorium natural decay series.

Thorium has been used historically as a medical imaging agent because it is a heavy atom that provides contrast in radiographic imaging techniques. In this role thorium has been used commercially as Thorotrast, a 25 percent colloidal solution of thorium dioxide. Thorotrast has been used extensively in the U.S., Europe, and Japan as an intravascular contrast agent for cerebral and limb angiography. Thorotrast has also been injected into the spleen for hepatolienography and into nasal and paranasal sinuses. These uses of Thorotrast result in deposition of the thorium (and subsequent decay products) in tissues and organs of the body, most frequently in the reticuloendothelial tissues in bone (NAS 1988). Once deposited in these tissues, alpha particle

emissions from the decay of Th-232 and its progeny irradiate the tissues for long periods of time at low dose rates. The following discussion of the study of health effects from exposure to thorium is summarized from the report of the BEIR IV Committee on radon and other alpha emitters (NAS 1988).

Dose Response Data - Human

The human data on health effects of exposure to thorium are primarily based on epidemiological studies of Thorotrast patients in five studies including German patients, Portuguese patients, Japanese patients, Danish patients, and American patients. In the study of German Thorotrast patients (van Kaick et al. 1978a, 1978b, 1983, 1984a, 1984b, 1986) 5159 patients and 5151 controls were followed from 1933 and 1935, respectively. The Thorotrast patients underwent intravascular injections of Thorotrast to enhance the imaging of cerebral and limb angiography. The results of the follow-up analysis indicate an excess of malignant cancers, most notably liver cancers and leukemias, among the patients relative to the controls.

The study of Portuguese Thorotrast patients (Abbatt 1973; da Motta et al. 1979; Horta et al. 1978) involves about 2500 patients and 2000 controls with a follow-up period of about 30 years. The patients were exposed to Thorotrast during the period from 1929 to 1955, with roughly 60 percent receiving Thorotrast doses for cerebral angiography. The results of the study show a significant excess of malignant cancer deaths among the patients compared to the control group. Particularly notable are the excess patient liver malignancies compared to the controls.

The study of Japanese Thorotrast patients (Kato et al. 1979, 1983; Mori et al. 1979a, 1979b, 1983, 1986) includes 282 patients who were administered Thorotrast for angiography and hepatolienography during World War II. The follow-up period spans 38 to 46 years, and results reveal that patient mortality from malignant liver cancers, other malignant cancers, blood diseases, and cirrhosis of the liver is significantly higher than in the control group.

The study of Danish Thorotrast patients (Faber 1973, 1977, 1978, 1979, 1983, 1986) involves 1319 Danes injected with Thorotrast during the period from 1935 to 1946. The epidemiological analysis reveals excess GI malignancies, liver malignancies, malignancies of the lung, and leukemia deaths in patients compared to control individuals. The excess of liver malignancies and leukemias is most notable in the study.

The study of American Thorotrast patients (Falk et al. 1979) is a preliminary epidemiological assessment of Thorotrast patients exposed during the period from 1964 to 1976. All patients had received Thorotrast for either hepatolienography or cerebral angiography. A liver cancer incidence is evident in the investigation and is reportedly continuing to increase. Further follow-up of these individuals is needed.

All five of these human epidemiological studies indicate an excess of malignant cancers among the Thorotrast patients compared to the controls. The excess malignancies are predominantly of the liver and blood (leukemia) types.

Estimation of Excess Risk from Thorotrast Administration

The human epidemiological evidence from studies of the Thorotrast patients represents the primary source of data from which an estimate of risk can be derived (NAS 1988). These data can be used to derive estimates of risk for liver cancer and leukemia; however, such estimates would only strictly apply to conditions of intravascular Thorotrast injection. The BEIR IV report derives a risk estimate of up to 300E-06 per rad of alpha particle radiation to the liver, and emphasizes that these estimates are for Thorotrast, not thorium. The emphasis is because the dosimetry of other isotopes of thorium will differ from that of the Th-232 in the Thorotrast colloid form. The BEIR IV report also derives a risk estimate of up to 60E-06 per rad of alpha radiation to bone marrow for leukemia, and a value of up to 120E-06 per rad alpha radiation to the skeleton without marrow for bone cancer (NAS 1988).

Dose Response Data - Animal

Experimental studies of animals administered modified Thorotrast solutions have provided insight concerning the possible influence on carcinogenicity of Thorotrast in humans from a "foreign body effect" (from the colloid solution), or a toxicological effect of the thorium in addition to a radiation dose effect. Studies in mice have been performed using Thorotrast solutions fortified with Th-230 to increase the specific activity of alpha emissions delivering radiation dose to tissues, conventional Thorotrast, and zirconium dioxide solution (Zirconotrast). There was no evidence of increased carcinogenicity of Thorotrast relative to Zirconotrast (Bensted 1967). Rabbits injected with Th-230 enriched Thorotrast revealed a shortened latency period (Faber 1973) associated with the higher specific activity solution. The metabolic distribution of Thorotrast and other colloid solutions has been examined in mice, rabbits, rats, and dogs including zirconium and hafnium dioxide colloids. The organ distribution of the Thorotrast and associated progeny in these animals was found to be

comparable to that in humans (Riedel et al. 1979, 1983). The other colloids failed to reveal significantly different effects attributable to their distributions compared to the Thorotrast (Riedel et al. 1979, 1983).

A study of dose response and whether a foreign body effect occurs was conducted by administering different Th-230 enrichments of Thorotrast (causing variation in dose rate) and by administering different volumes of Thorotrast (dilutions maintaining constant dose rate) to rats (Wesch et al. 1973, 1983). Results of frequency of cancers followed a linear dependence with dose rate; however, variation of the volume of Thorotrast administered did not correlate with frequency of induction. Although cancer risk did not increase with volume of Thorotrast at a constant dose rate, the latent period was shortened (Wesch et al. 1973, 1983).

Additional studies in rats involved injection with Zirconotrast enriched with Th-228. Cancer induction in the animals was elevated and the cancers induced were similar to those induced in humans by Thorotrast (Wesch 1986). The frequency of cancer induction was dose rate dependent and the Zirconotrast without Th-228 did not induce excess cancers (Wesch 1986).

In summary, the animal experimental evidence indicates that Thorotrast induces cancers as a result of the radiation dose delivered by the solution. The physical presence of particles in the colloid solution and the chemical effect of the thorium are not likely to influence the induction of cancer (NAS 1988).

A.V.109 INORGANIC TIN

A.V.109.1 Pharmacokinetics

Estimates of the gastrointestinal absorption efficiency of tin in humans and animals range from 0.6 percent to 5 percent (Magos 1986). The data suggest that tin in the +2 valence state is more readily absorbed than tin in the +4 valence state. Species differences in gastrointestinal absorption appear to be slight. Absorption efficiency appears to be somewhat greater when the administered dose is smaller. From these data, it appears that an estimate of 5 percent (0.05) is a reasonable estimate of gastrointestinal absorption efficiency. Data regarding dermal uptake of tin were not located.

A.V.109.2 Noncancer Toxicity

Industrial (inhalation) exposure to tin dust results in a benign pneumoconiosis called stannosis (Magos 1986). Acute oral exposure causes gastroenteritis (nausea and diarrhea) in humans. Other effects in animals include anemia, interference with calcium metabolism, and liver and kidney lesions. A chronic oral RfD of 0.66 mg/kg-day was based on a NOAEL for liver and kidney lesions of 2000 ppm stannous chloride in the diet in a two-year study in rats (EPA 1992b). An uncertainty factor of 100 was applied. The chronic oral RfD was considered sufficiently protective for subchronic exposure as well.

A.V.109.3 Carcinogenicity

Data regarding the carcinogenicity of tin were not located in the available literature.

A.V.110 TOLUENE

A.V.110.1 Noncancer Toxicity

In a subchronic gavage study, high doses of toluene induced slight changes in liver and kidney weights in rats (EPA 1994). Inhalation exposure of laboratory animals or humans was associated primarily with CNS depression (ATSDR 1989h). Recent developmental toxicity studies in animals suggest that the fetus or offspring may be unusually sensitive to effects on the developing nervous system. The EPA (1993a) presented a verified chronic oral RfD for toluene of 0.2 mg/kg/day based on an NOAEL for changes in liver and kidney weights in rats in a 13-week gavage study and an uncertainty factor of 1000. A provisional subchronic oral RfD of 2 mg/kg/day was based on the same NOAEL and an uncertainty factor of 100 (EPA 1992b). The EPA (1993a) presented a verified chronic inhalation RfC of 0.4 mg/m^3 based on an LOAEL for neurological effects in occupationally exposed humans and an uncertainty factor of 300. The EPA (1992b) presented a provisional subchronic inhalation RfC of 2 mg/m^3, based on an NOAEL for CNS effects and mucosal irritation in humans and an uncertainty factor of 100. The chronic inhalation RfC is equivalent to 0.1 mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. Similarly estimated, the subchronic inhalation RfC is equivalent to 0.6 mg/kg/day.

A.V.110.2 Carcinogenicity

Toluene is classified as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans), based on no human data and inadequate animal data (EPA 1994). Quantitative risk estimates are not derived for Group D substances.

A.V.111 TOXAPHENE (Clement, 1985)

A.V.111.1 Health Effects

The results of a bioassay conducted for the Carcinogenesis Testing Program of the National Cancer Institute indicate that toxaphene causes increased incidences of hepatocellular carcinonomas in mice, and suggest that it is carcinogenic for the thyroid in the rat (NCI 1977a). IARC has concluded that toxaphene is an animal carcinogen and a suspected human carcinogen. Toxaphene has produced both positive and negative results in a series of different mutagenicity assays. Studies concerning the reproductive effects of toxaphene suggest that oral administration may produce maternal and fetal toxicity. However, toxaphene does not appear to have teratogenic effects.

Acute exposure to toxaphene causes effects due primarily to central nervous system stimulation. Subchronic exposure results in kidney changes, as well as changes in blood chemistry. Symptoms of acute oral toxaphene intoxication in humans include vomiting, convulsions, cyanosis, and coma. A minimum lethal oral dose of 40 mg/kg is reported for humans. In rats, pathological effects of toxaphene include cloudy swelling and congestion of their kidneys, fatty degeneration and necrosis of the liver, and decreased spermatogenesis. Toxaphene in the diet is reported to inhibit hepatobiliary function in rats. An oral LD_{50} value of 40 mg/kg is reported for the rat. Although there also are reports of toxaphene toxicity due to dermal and inhalation exposure in humans and experimental animals, most available information concerns effects due to ingestion.

A.V.112 TRIBUTYL PHOSPHATE

A.V.112.1 Noncancer Toxicity

Tributyl phosphate exhibits rather low acute oral toxicity; the oral single-dose $LD_{50/30}$ in rats was 3000 mg/kg (ACGIH 1986). The compound is a weak cholinesterase inhibitor and induces paralysis and anesthesia, as well as lung edema, when given orally or parenterally (ACGIH 1986; Sandmeyer

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and Kirwin 1981). Irritation of the skin and mucous membranes and lung edema results from inhalation exposure. Occupational exposure to 15 mg/m^3 was associated with headache and nausea.

The EPA Environmental Criteria and Assessment Office (EPA 1993d) developed a Risk Assessment Issue Paper that recommends a provisional chronic oral RfD of 0.005 mg/kg/day for tributyl phosphate. The RfD is based on an NOAEL of 14 mg/kg/day and an uncertainty factor of 3000 in rat dietary studies (FMC, 1985) where urinary bladder hyperplasia was identified as the critical effect.

A.V.112.2 Carcinogenicity

Data were not located regarding the carcinogenicity of tributyl phosphate. However, the compound was negative for mutagenicity in Salmonella and Drosophila.

A.V.113 1,2,4-TRICHLOROBENZENE (TCB) (Clement, 1985)

A.V.113.1 Health Effects

There are no reports indicating carcinogenic, teratogenic, or mutagenic activity of the trichlorobenzenes in humans or animals. No specific reproductive effects have been found for the TCBs, but embryotoxicity has been noted at a dose level that produces maternal toxicity in rats (Kitchin and Ebron 1983).

Several animal studies on the subchronic toxicity of trichlorobenzenes have been reported. Inhalation studies with 1, 2,4-TCB of 1.5 to 6 months duration in rats, rabbits, dogs, and monkeys have not shown major irreversible effects, although some effects on liver and kidney were found (transient histological changes and increased relative liver weight; (Clement 1985). Increased urinary porphyrin levels were also noted. Also it was reported that mice exposed to TCB (isomers unspecified) for 3 weeks to 3 months showed indications of bone marrow damage. In a chronic study in which mice were administered 1, 2,4-TCB by dermal application, there was a treatment-related increase in the incidence of amyloidosis, which affected a number of organs and was considered a primary cause of death (Clement, 1985).

TCB is an inducer of the microsomal mixed function oxidases and therefore will increase metabolism, leading to the inactivation or activation of chemicals affected by this system.

A.V.114 1,1,1-TRICHLOROETHANE

A.V.114.1 Noncancer Toxicity

The toxicity of oral exposure to 1,1,1-trichloroethane is low (ACGIH 1986). Chronic ingestion by laboratory animals reduced growth rate, but produced little pathology in internal organs (ATSDR 1990). Acute inhalation exposure of humans or animals to high levels induced death due to narcosis or cardiac sensitization (ACGIH 1986). Occupational exposure was not associated with systemic effects. A provisional chronic inhalation RfC of 1 mg/m^3 was derived from an NOAEL for slight growth retardation in guinea pigs and an uncertainty factor of 1000. The provisional subchronic inhalation RfC, based on the same NOAEL and an uncertainty factor of 100, was 10 mg/m^3. The chronic and subchronic inhalation RfC values are equivalent to 0.3 and 3 mg/kg/day, respectively, assuming humans inhale 20 m^3 of air/day and weigh 70 kg. Target organs for inhalation exposure to 1,1,1-trichloroethane are the CNS and heart.

A.V.114.2 Carcinogenicity

The EPA (1993a) classifies 1,1,1-trichloroethane as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans). There are no reported human cancer data, and animal studies (78-week gavage studies in rats and mice, and a 12-month inhalation study in rats) were inadequate to determine the carcinogenicity of 1,1,1-trichloroethane in animals. Quantitative cancer risk estimates are not derived for Group D compounds.

A.V.115 1,1,2-TRICHLOROETHANE (Clement, 1985)

A.V.115.1 Health Effects

1,1,2-Trichloroethane induced heptacellular carcinomas and pheochromocytoma of the adrenal gland in male and female mice but did not produce a significant increase in tumor incidence in male or female rats (NCI 1976). It was not mutagenic when tested using the Ames assay. No information was found concerning the reproductive toxicity or teratogenicity of 1,1,2-trichloroethane. No chronic studies were found on the toxicity of 1,1,2-trichloroethane but single doses as low as 400 mg/kg caused liver and kidney damage in dogs. The oral LD_{50} value for 1,1,2-trichloroethane in rats is 835 mg/kg.

A.V.116 TRICHLOROETHENE

A.V.116.1 Noncancer Toxicity

Little is known about the toxicity of prolonged oral exposure to trichloroethene. Acute inhalation exposure to high levels induced anesthesia, tachypnea, and ventricular arrhythmias (ACGIH 1986). Occupational exposure was associated with headache, dizziness, lassitude, and other CNS effects. Prolonged inhalation exposure of animals affected the liver and kidneys. Neither oral nor inhalation RfD or RfC values were located for trichloroethene in IRIS or HEAST. The principal target organs for trichloroethene are the CNS and heart, and, to a lesser extent, the liver and kidney.

A.V.116.2 Carcinogenicity

Carcinogenicity studies in laboratory animals showed increased incidence of hepatocellular carcinomas (gavage exposure) and malignant lymphomas (inhalation exposure) in mice and increased incidence of renal adenocarcinomas in male rats (gavage) (EPA 1988d). Cancer studies in humans were inadequate. Interpretation of the data regarding the carcinogenicity of trichloroethene is controversial, and the EPA (1992h) has not adopted a final position on a cancer weight-of-evidence classification or quantitative risk estimates for trichloroethene. For this reason, trichloroethene was removed from the IRIS and the 1992 HEAST (EPA 1992b). Currently, EPA believes the weight-of-evidence to be on the C-B2 continuum (possible-probable human carcinogen), and offers slope factors of 0.011 per mg/kg/day for oral exposure and 0.006 per mg/kg/day for inhalation exposure as being useful.

A.V.117 TRICHLOROFLUOROMETHANE

A.V.117.1 Noncancer Toxicity

One study reported no effects in rats and dogs exposed to levels equivalent to doses somewhat higher than those in the NCI (1978) gavage study (Leuschner et al. 1983). These concentrations of trichlorofluoromethane induced mild narcosis and transient cardiac sensitization (ACGIH 1986). Provisional chronic and subchronic inhalation RfC values of 0.7 and 7 mg/m^3, respectively, were derived from an LOAEL for impaired kidney function and pulmonary inflammation in dogs continuously exposed to trichlorofluoromethane in air for 90 days. Uncertainty factors of 10,000 and 1000 were used for the chronic and subchronic inhalation RfC values, respectively. The chronic and subchronic RfC values are equivalent to 0.2 and 2 mg/kg/day, respectively, assuming humans inhale 20 m^3 of air/day and weigh 70 kg.

A dose of 2.5 mL/kg (3700 mg/kg, assuming a density of 1.494 g/mL [Budavari 1989]) produced neither fatalities not liver necrosis in rats.

The EPA (1993a) derived a verified chronic oral RfD of 0.3 mg/kg/day from the LOAEL for reduced survival of 349 mg/kg/day. This 78-week gavage study in rats and mice was associated with decreased survival in both species, even at the lowest dose tested (349 mg/kg/day) (NCI 1978). The cause of death was not ascertained, but pleuritis and pericarditis were observed in some of the treated rats. An uncertainty factor of 1000 was applied when calculating the RFD; factors of 10 each for inter- and intraspecies variation, and to estimate an NOAEL from an LOAEL. A provisional subchronic oral RfD of 0.7 mg/kg/day was based on an LOAEL for decreased body weights in a 6-week gavage study in rats and an uncertainty factor of 1000 (EPA 1992b). Target organs for trichlorofluoromethane include the CNS, heart, and kidney.

A.V.117.2 Carcinogenicity

Trichlorofluoromethane has not yet been reviewed by the EPA for evidence of carcinogenicity to humans (EPA 1994).

A.V.118 2,4,5-TRICHLOROPHENOL

A.V.118.1 Pharmacokinetics

Data regarding the pharmacokinetics of 2,4,5-trichlorophenol were not located in the available literature. The log K_{ow} of 3.69 for 2,4,6-trichlorophenol, a structurally similar compound (Howard 1989), suggests that 2,4,5-trichlorophenol is probably strongly lipophilic, and that it would be absorbed from the gastrointestinal tract and through the skin. Default values for absorption efficiency of 0.9 for gastrointestinal absorption and 0.3 for dermal uptake from soil (EPA 1993d) appear to be reasonable.

A.V.118.2 Noncancer Effects

A chronic oral RfD of 0.1 mg/kg-day is based on a NOEL for liver and kidney effects in a subchronic study in rats (EPA 19931). An uncertainty factor of 1000 was applied; factors of 10 each to expand from subchronic to chronic exposure, to extrapolate from animals to humans, and to account for the range of variability in human sensitivity. The subchronic oral RfD of 1.0 mg/kg-day

was based on the same study and an uncertainty factor of 100 (EPA 1992b). The data were insufficient for derivation of a toxicity value for inhalation exposure.

A.V.118.3 Carcinogenicity

Data were not located regarding the carcinogenicity of 2,4,5-trichlorophenol. 2,4,6-Trichlorophenol, which is structurally similar to 2,4,5-trichlorophenol, is considered a probable human carcinogen (EPA weight-of-evidence Group B2) based on increased incidence of lymphomas or leukemias in male rats and hepatocellular adenomas of carcinomas in male and female mice (EPA 1994).

A.V.119 URANIUM

A.V.119.1 Noncancer Toxicity

The only chemical toxicity effect in humans unequivocally attributed to soluble uranium salts is kidney damage, involving the proximal convoluted tubule, and manifested initially as albuminuria and increased urinary catalase (Berlin and Rudell, 1986b). Rabbits were more sensitive than dogs or rats. Treatment of rabbits and dogs with soluble uranium salts also induced neurologic signs and pathological changes of the nervous system. EPA (1993a) presented a verified RfD of 0.003 mg/kg/day for chronic oral exposure to soluble uranium salts. The basis was an LOAEL for kidney damage in rabbits treated with uranyl nitrate hexahydrate in the diet for 30 days, and an uncertainty factor of 1000. A subchronic oral RfD was not located. The principal target organ for the chemical toxicity of soluble salts of uranium is the kidney; the CNS may be an additional target organ.

A.V.119.2 Carcinogenicity

Uranium can induce cancer as a result of intake into the body through inhalation or ingestion pathways. The induction of cancer results when organs and tissues of the body are exposed to alpha particles emitted from decaying uranium atoms. Alpha particles are energetic emissions that cause molecular ionizations in a very dense pattern along a short path through matter. The effect of an alpha particle is highly localized due to the short path length traveled (low penetrability) and the ability of the particle to produce many ionizations. The ionization events cause biological damage that is believed to be responsible for inducing cells to become cancerous. Although other energetic emissions from radioactive decay of atoms (such as beta particles and gamma rays) also cause molecular ionizations, these radiations do not produce the density of ionizations that alpha particles produce. The dense pattern of ionizations caused by alpha particles and the low penetrability of alpha

particles are the factors that determine uranium is an internal exposure hazard. Alpha particles are not an external exposure hazard because they do not penetrate sensitive tissues from outside the body. The outer layers of the skin stop the alpha particles before they can penetrate to and damage sensitive tissues of inner layers.

The type of uranium (e.g. natural, enriched, depleted) under consideration is important because different types of uranium have different specific activities (the amount of radioactivity per unit mass). The magnitude of the specific activity of the uranium reflects the number of alpha particles emitted per unit mass. This has a direct impact on the magnitude of the radiological dose delivered internally after the uranium enters the body. Naturally-occurring uranium and uranium processed from natural uranium is a mixture of U-234, U-235, and U-238. The difference between natural, enriched, and depleted uranium is defined by the percent U-235 mass enrichment. The higher the U-235 enrichment, the higher the specific activity of the mixture.

The following discussion of human data concerning health effects of uranium exposure is summarized from the report of the BEIR IV Committee on radon and other alpha emitters (NAS 1988). Convincing epidemiological evidence of uranium-induced radiocarcinogenic effects in humans is difficult to obtain. Available epidemiological evidence comes from studies of workers involved in uranium mining and milling operations. It has been noted for some time that uranium workers are at risk of increased cancer mortality; however, inhalation of airborne radon progeny rather than uranium particulates is considered the predominant source of radiation damage to the respiratory tract in uranium miners. Simultaneous exposures to radon progeny and other elements present in uranium ore are considered confounding factors in studies of uranium miners intended to specifically examine the radiological effects of exposure to uranium.

Risk estimation for exposure to uranium is based heavily on the carcinogenic effects of other alpha-emitting radionuclides and animal experiments involving exposure to uranium. Available human epidemiological studies are discussed as follows.

Epidemiological surveys of uranium workers began in the United States in 1950 (Miller et al. 1956) and reports of increased cancer risk among uranium millers in Europe first began in 1959 (Rockstroh 1959). In contrast, other studies have indicated that there is little evidence of a health hazard to workers in the uranium processing industry (Ely 1959). The BEIR IV report (NAS 1988) cautions

that the validity of epidemiological studies on effects of uranium must be considered in the context of the power or ability of the studies to detect an effect if one existed. This question is important with regard to all of the available epidemiological studies on uranium effects.

An early U.S. Public Health Service study of uranium miners and millers in the Colorado Plateau reported no increase in mortality in the cohort of uranium millers studied (Wagoner et al. 1964). A more detailed study with longer follow-up of the same cohort was performed (Archer et al. 1973). The number of deaths available for analysis was almost equal to the expected number of deaths determined among controls. Interpretation of the results is complicated by the fact that exposure data are not available, the excess cases include three diagnostic categories, precautions taken to exclude individuals with underground mining exposure through previous employment were not stated, and the analysis was not performed in relation to the length of exposure. The study does not provide strong evidence that uranium has a specific effect because of the weak epidemiological power of the study.

Studies of uranium workers exposed to enriched uranium have been performed. A study of workers at the enrichment facility in Oak Ridge between 1943 and 1947 indicated that the mortality of the study cohort was not increased for lung cancer, bone cancer, or nephrotoxic disorders (Polednak and Frome 1986). This study is weakened by the fact that it is based on exposures of short duration (typically 1 to 2 years), which does not provide conclusive evidence concerning health effects from long-term (chronic) exposure. Subsequent study of a cohort from the same population was performed to examine lung cancer risk from inhalation exposure of uranium dust (Cookfair et al. 1983). The results indicate an increased risk among the group of workers hired at an age over 45, and the magnitude of the increase was greater for higher exposures.

A retrospective study of uranium mill workers from the Colorado Plateau was conducted to examine the health risks of uranium exposure in the absence of uranium mining (Waxweiler et al. 1983). The findings of the study were not statistically significant and are mitigated by the small number of deaths available for workers employed for at least five years. The results did not reveal an increase in lung cancer deaths and did not conclusively demonstrate an increased nephrotoxic effect.

The available epidemiological studies fail to conclusively demonstrate health effects from chronic exposure to uranium dust involved in uranium mining and milling operations. However, it is not necessarily concluded that the epidemiological data conclusively demonstrate the absence of effect.

This is because the power of the studies is limited, weakened by short worker exposure durations, inadequate estimates of uranium exposures, and insufficient worker follow-up time to adequately evaluate long-term effects.

In conclusion, chronic exposure to uranium should be controlled on the basis of nephrotoxicity more than by radiocarcinogenicity from alpha particle emissions (NAS 1988). Quantification of the risk from chronic exposure to uranium alpha particles cannot be determined from published epidemiological studies because of confounding factors and the limited power of the studies to detect increased rates of cancer incidence or mortality (NAS 1988). Therefore, the BEIR IV Committee presents a risk estimate for uranium based on the carcinogenic effects of other alpha-emitting radionuclides and animal experiments involving exposure to uranium. The most probable radiogenic effect is an increase in bone sarcomas. The likelihood of sarcomas from exposure to naturally-occurring uranium is considered low and only demonstratable if a linear dose-response relationship is assumed (Mays et al. 1985). If the dose-response relationship is quadratic, then virtually no effect would be expected from naturally-occurring uranium. Assuming a linear dose-response relationship and a constant nonoccupational uranium intake of 1 pCi/day the risk of bone sarcoma induction over a lifetime is estimated to be 1.5 bone sarcomas per million persons (1.5E-06) (Mays et al. 1985). This is compared to a natural incidence of 750 bone sarcomas in the absence of excess exposure.

Assuming a constant nonoccupational uranium intake rate of 1 pCi/day, an exposure frequency of 365 days/year, and a lifetime of 70 years, a lifetime intake of uranium of nearly 26,000 pCi is calculated. Using the risk factor from Mays (Mays et al. 1985) and dividing by the calculated lifetime intake, one can derive a risk factor of 5.9E-11 per pCi. Comparison of this risk factor with the cancer slope factors from HEAST for ingestion of U-234, U-235, and U-238 indicates that the ratios of the HEAST values to the former value are 2.4, 2.2, and 2.2, respectively.

The following discussion of experimental animal data concerning health effects of uranium exposure is summarized from the report of the BEIR IV Committee on radon and other alpha emitters (NAS 1988). The effect of bone cancer induction is addressed first, followed by the effect of lung cancer induction.

The discussion involving human epidemiological evidence identified the bone surfaces as the most probable target tissue for exposure to uranium and bone sarcoma as the carcinogenic effect of

concern. Radiocarcinogenic effects including bone sarcoma and head carcinoma have also been observed in animals and humans from exposure to isotopes of radium, and studies involving exposure of mice to high specific activity U-232 and U-233 also reveal an increase in bone sarcomas. Soviet researchers have demonstrated that highly enriched uranium, which has a high specific activity, induces bone sarcomas in rats. These results indicate that intake of high specific activity, alpha-particle-emitting radionuclides increases the risk of these cancers in animals. It would be reasonable to expect high specific activity uranium to induce bone sarcomas in humans; however, the likelihood that low specific activity, naturally-occurring uranium induces bone sarcomas is low.

The discussion of human epidemiological evidence states that an estimate of the excess risk of bone sarcoma in humans from chronic ingestion of uranium has been developed (Mays et al. 1985). This risk estimate is based on a linear dose-response relationship for Ra-226. Therefore, it is assumed that the response to alpha particles from uranium exposure is similar to the response to alpha particles from Ra-226. This assumption is dependent in part on the metabolic behavior of uranium relative to radium. There is evidence indicating that uranium seeks bone tissue in a manner similar but not identical to that of radium. Uranium-233 administered to beagle dogs has been shown to initially deposit nonuniformly on bone surfaces; however, redistribution occurs (within approximately one year) to produce a distribution through the bone volume that is similar to the distribution of radium (Stevens et al. 1980). Distribution of uranium throughout the bone volume in dogs has also been reported by Rowland and Farnham (1969) and Bruenger (personal communication with BEIR IV Committee, 1986 not available in bibliography).

The induction of malignant tumors in the lung is of concern for exposure to uranium by inhalation. As previously discussed, uranium emits alpha particles, which can deposit a highly localized radiation dose to sensitive tissues in the passages of the respiratory tract if particulate uranium is deposited in those passageways. The effects of inhalation of insoluble forms of uranium have been studied in rats, dogs, and monkeys for both short and prolonged exposure scenarios (Leach et al. 1970, 1973). Affected sites for insoluble forms of uranium are the tissues of the lung and the pulmonary lymph nodes. Chronic inhalation of uranium in these studies produced fibrosis of lung tissue and induction of malignant lung tumors. Data from those inhalation studies that involved dogs have been reanalyzed (Durbin and Wrenn 1975), leading to the conclusion that neoplastic changes (tumor induction) began in epithelial cells of the lungs in 21 percent of the dogs after a cumulative lung dose of 160 rads.

Another study involving exposure of rats to U-232 and U-233 (as uranyl nitrate) by inhalation reveals an increase in malignant lung tumors and bone sarcomas (Ballou et al. 1980). However, the significance of the bone sarcomas (osteosarcomas) is questionable because the rats exposed to control aerosols also developed these tumors. The osteosarcomas are not statistically significant because of their appearance in the control rats. The results of this study of high specific activity U-232 and U-233 labeled uranyl nitrate can lead to the reasonable expectation that such exposure can induce malignant lung tumors in humans. However, the findings of this work do not provide the data needed to convincingly extrapolate a risk coefficient for human exposure.

A.V.120 VANADIUM

A.V.120.1 Noncancer Toxicity

The oral toxicity of vanadium compounds to humans is very low (Lagerkvist et al. 1986), probably because little vanadium is absorbed from the GI tract. Effects in humans exposed by inhalation include upper and lower respiratory tract irritation. A provisional subchronic and chronic oral RfD of 0.007 mg/kg/day was derived from an NOEL in rats in a lifetime drinking water study with vanadyl sulfate and an uncertainty factor of 100 (EPA 1992b). A target organ could not be identified for oral exposure. The respiratory tract is the target organ for inhalation exposure.

A.V.120.2 Carcinogenicity

No information was located regarding the carcinogenicity of vanadium.

A.V.121 VINYL CHLORIDE

A.V.121.1 Noncancer Toxicity

Data were not located regarding oral exposure of humans to vinyl chloride (ATSDR 1989i). In rats, lifetime dietary ingestion of vinyl chloride slightly but significantly increased mortality and induced mild histopathologic effects in the liver. Several early occupational studies associated vinyl chloride exposure with a syndrome known as vinyl chloride disease, which includes acroosteolysis (dissolution of the ends of the distal phalanges of the hands), circulatory disturbances in the extremities, Raynaud syndrome (sudden, recurrent bilateral cyanosis of the digits), scleroderma, hematologic effects, effects on the lungs, and impaired liver function and liver damage. Mild neurologic effects were also associated with occupational exposure. Long-term inhalation studies in rats and mice identified

elevated relative liver weight as a sensitive indicator of liver effects. Neither inhalation RfC values nor oral RfD values for vinyl chloride were located. The principal target organs for vinyl chloride appear to be the CNS and the liver.

A.V.121.2 Carcinogenicity

The EPA (1993b) lists vinyl chloride as an EPA cancer weight-of-evidence Group A compound (human carcinogen) and presents a verified oral slope factor of 1.9 per mg/kg/day, based on the increased incidence of liver and lung tumors in a lifetime dietary study in rats. An inhalation unit risk of 8.4E-05 per $\mu g/m^3$, equivalent to 0.3 per mg/kg/day, assuming humans inhale 20 m^3 of air/day and weigh 70 kg, is based on liver tumors in rats intermittently exposed by inhalation for 12 months.

A.V.122 XYLENES

A.V.122.1 Noncancer Toxicity

Prolonged oral exposure of animals to xylenes was associated with CNS signs and increased mortality, without histopathological alterations in the internal organs (EPA 1994). Occupational exposure to xylenes induced CNS effects and GI disturbances (ACGIH 1986). Other effects attributed to occupational exposure to xylene (blood dyscrasias, and heart, liver, and kidney damage) may have arisen from concurrent exposure to other chemicals. The EPA (1993a) presented a chronic oral RfD for total xylenes of 2 mg/kg/day based on an NOAEL for hyperactivity and decreased body weight and increased mortality in male rats in chronic gavage studies. An uncertainty factor of 100 was used. The EPA (1992b) presented a subchronic oral RfD of 4 mg/kg/day based on an NOEL for body weight effects in a 13-week gavage study in rats and an uncertainty factor of 100. Inhalation RfC values for xylenes are considered not verifiable by the RfD/RfC Work Group (EPA 1992b). The CNS is the principal target organ for xylenes.

A.V.122.2 Carcinogenicity

Xylene is classified as a cancer weight-of-evidence Group D compound (not classifiable as to carcinogenicity to humans) (EPA 1994). There are no reported human cancer data, and gavage animal studies in rat and mice of both sexes did not result in significant increases in tumor incidence. Quantitative risk estimates are not derived for Group D substances.

A.V.123 ZINC

A.V.123.1 Pharmacokinetics

Zinc is a nutritionally required trace element. Estimates of the efficiency of GI absorption of zinc in animals range from < 10 to 90 percent (Elinder 1986c). Estimates in normal humans range from approximately 20 to 77 percent (Elinder 1986c; Goyer 1991). The net absorption of zinc appears to be homeostatically controlled, but it is unclear whether GI absorption, intestinal secretion, or both are regulated. Distribution of absorbed zinc is primarily to the liver (Goyer 1991), with subsequent redistribution to bone, muscle, and kidney (Elinder 1986c). Highest tissue concentrations are found in the prostate. Excretion appears to be principally through the feces, in part from biliary secretion, but the relative importance of fecal and urinary excretion is species-dependent. The half-life of zinc absorbed from the GI tracts of humans in normal zinc homeostasis is approximately 162 to 500 days.

A.V.123.2 Noncancer Toxicity

Humans exposed to high concentrations of aerosols of zinc compounds may experience severe pulmonary damage and death (Elinder 1986c). The usual occupational exposure is to freshly formed fumes of zinc, which can induce a reversible syndrome known as metal fume fever. Orally, zinc exhibits a low order of acute toxicity. Animals dosed with 100 times dietary requirement showed no evidence of toxicity (Goyer 1991). In humans, acute poisoning from foods or beverages prepared in galvanized containers is characterized by GI upset (Elinder 1986c). Chronic oral toxicity in animals is associated with poor growth, GI inflammation, arthritis, lameness, and a microcytic, hypochromic anemia (Elinder 1986c), possibly secondary to copper deficiency (Underwood 1977). The EPA (1992b) presented a verified RfD of 0.3 mg/kg/day for chronic oral exposure to zinc, based on anemia in humans.

A.V.123.3 Carcinogenicity

The EPA (1993a) classifies zinc in cancer weight-of-evidence Group D (not classifiable as to carcinogenicity to humans) based on inadequate evidence for carcinogenicity in humans and animals. The human data consist largely of occupational exposure studies not designed to detect a carcinogenic response, and of reports that prostatic zinc concentrations were lower in cancerous than in noncancerous tissue. The animal data consist of several dietary, drinking water, and zinc injection studies, none of which provided convincing data for a carcinogenic response.

A.V.124 REFERENCES

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TABLE A.VI-1a
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	2.0E-02	NA	NA	NA
Np_{237+1d}	6.6E-03	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	4.1E-01	4.1E+02	NA	2.2E+00
$Pu_{239/240}$	4.2E-02	NA	NA	NA
Ra_{226+5d}	2.8E+00	1.6E+03	NA	8.9E+00
Ra_{228+1d}	2.4E+00	NA	NA	NA
Ru_{106}	6.2E-03	NA	NA	NA
Sr_{90+1d}	4.4E-02	1.1E+03	NA	5.8E+00
Tc_{99}	2.4E-01	NA	NA	NA
Th_{228+7d}	5.7E-01	NA	NA	NA
Th_{230}	1.2E+01	2.3E+03	NA	1.3E+01
Th_{232}	1.4E+00	NA	NA	NA
U_{234}	3.9E+01	1.7E+04	NA	9.6E+01
$U_{235/236}$	3.0E+00	1.2E+03	NA	6.4E+00
U_{238+2d}	4.1E+01	2.6E+04	NA	1.4E+02
Rn_{222+4d}	4.6E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.4E-10	4.1E-06	2.3E-07	NA
beryllium	1.5E-11	3.4E-07	1.9E-07	NA
cadmium	5.4E-11	3.8E-07	2.2E-07	NA
chromium vi	2.7E-10	6.1E-06	3.5E-06	NA
nickel	3.1E-10	8.3E-06	2.4E-07	NA
benzene	9.1E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-13	4.2E-08	9.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	8.4E-14	8.7E-08	1.5E-06	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.3E-15	NA	NA	NA
1,1-dichloroethene	NA	2.1E-09	3.6E-08	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	9.8E-14	4.5E-09	7.8E-08	NA
n-nitrosodiphenylamine	5.1E-14	NA	NA	NA
n-nitrosodipropylamine	1.7E-15	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.7E-08	3.5E-10	8.0E-09	NA
trichloroethene	5.5E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	6.6E-13	6.3E-07	1.1E-05	NA
benzo(a)pyrene	7.7E-13	5.6E-07	9.6E-06	NA
benzo(b)fluoranthene	7.7E-13	7.0E-07	1.2E-05	NA
benzo(k)fluoranthene	6.4E-13	5.2E-07	9.0E-06	NA
chrysene	6.8E-13	7.7E-07	1.3E-05	NA
dibenzo(a,h)anthracene	2.2E-13	1.4E-07	2.4E-06	NA
indeno(1,2,3-cd)pyrene	4.9E-13	4.5E-07	7.8E-06	NA
aroclor-1254	2.0E-12	7.0E-08	2.4E-07	NA
aroclor-1260	1.0E-14	NA	NA	NA
4,4-ddt	2.9E-15	NA	NA	NA
4,4-dde	4.8E-15	NA	NA	NA
chlordane	5.3E-16	NA	NA	NA
dieldrin	1.2E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.3E-17	NA	NA	NA
octachlorodibenzofuran	2.2E-17	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

DRAFT

TABLE A.VI-1b
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation			
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	2.4E-02	7.5E+02	NA	4.1E+00
Np_{237+1d}	1.4E-02	4.4E+02	NA	2.4E+00
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	3.7E-01	3.8E+03	NA	2.1E+01
$Pu_{239/240}$	4.8E-02	1.0E+03	NA	5.7E+00
Ra_{226+5d}	4.3E+00	1.1E+03	NA	5.8E+00
Ra_{228+1d}	2.6E+00	3.1E+04	NA	1.7E+02
Ru_{106}	1.9E-02	NA	NA	NA
Sr_{90+1d}	5.7E-02	6.2E+02	NA	3.4E+00
Tc_{99}	2.8E-01	3.2E+03	NA	1.7E+01
Th_{228+7d}	5.9E-01	1.6E+04	NA	8.9E+01
Th_{230}	1.6E+01	6.4E+04	NA	3.5E+02
Th_{232}	1.1E+00	2.2E+04	NA	1.2E+02
U_{234}	4.3E+01	4.6E+05	NA	2.5E+03
$U_{235/236}$	3.5E+00	4.0E+04	NA	2.2E+02
U_{238+2d}	4.5E+01	4.9E+05	NA	2.7E+03
Rn_{222+4d}	7.2E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	2.0E-10	4.3E-06	2.5E-07	NA
beryllium	2.2E-11	5.2E-07	3.0E-07	NA
cadmium	7.0E-11	2.2E-06	1.2E-06	NA
chromium vi	3.8E-10	1.0E-05	6.0E-06	NA
nickel	4.4E-10	9.2E-06	2.7E-07	NA
benzene	1.4E-16	1.7E-09	5.0E-11	NA
bis(2-ethylhexyl)phthalate	2.3E-13	9.1E-08	2.1E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	9.1E-14	7.5E-08	1.3E-06	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.3E-15	NA	NA	NA
1,1-dichloroethene	NA	1.4E-09	2.4E-08	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-13	7.0E-09	1.2E-07	NA
n-nitrosodiphenylamine	1.2E-13	NA	NA	NA
n-nitrosodipropylamine	2.7E-15	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.8E-08	4.2E-09	9.6E-08	NA
trichloroethene	7.7E-08	1.2E-08	2.0E-07	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.3E-12	5.6E-07	9.6E-06	NA
benzo(a)pyrene	1.3E-12	3.8E-07	6.6E-06	NA
benzo(b)fluoranthene	1.5E-12	5.2E-07	9.0E-06	NA
benzo(k)fluoranthene	9.8E-13	4.2E-07	7.2E-06	NA
chrysene	1.3E-12	5.6E-07	9.6E-06	NA
dibenzo(a,h)anthracene	3.8E-13	1.4E-07	2.4E-06	NA
indeno(1,2,3-cd)pyrene	9.1E-13	3.5E-07	6.0E-06	NA
aroclor-1254	2.7E-12	1.4E-06	4.8E-06	NA
aroclor-1260	1.7E-14	3.1E-07	1.1E-06	NA
4,4-ddt	4.3E-15	NA	NA	NA
4,4-dde	6.7E-15	NA	NA	NA
chlordane	9.1E-16	NA	NA	NA
dieldrin	1.7E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.1E-17	NA	NA	NA
octachlorodibenzofuran	3.5E-17	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1c
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	2.2E-02	6.1E+02	NA	3.4E+00
Np_{237+1d}	8.6E-03	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	1.4E-01	NA	NA	NA
$Pu_{239/240}$	2.5E-02	9.4E+02	NA	5.2E+00
Ra_{226+5d}	2.5E+01	3.0E+03	NA	1.6E+01
Ra_{228+1d}	2.4E+00	5.2E+03	NA	2.8E+01
Ru_{106}	9.6E-03	NA	NA	NA
Sr_{90+1d}	7.1E-02	2.1E+03	NA	1.2E+01
Tc_{99}	3.5E-01	3.2E+03	NA	1.7E+01
Th_{228+7d}	4.2E-01	3.2E+03	NA	1.8E+01
Th_{230}	2.5E+01	1.4E+04	NA	7.8E+01
Th_{232}	1.0E+00	3.2E+03	NA	1.7E+01
U_{234}	2.2E+01	1.4E+05	NA	7.8E+02
$U_{235/236}$	1.9E+00	6.5E+03	NA	3.6E+01
U_{238+2d}	2.5E+01	1.5E+05	NA	8.3E+02
Rn_{222+4d}	5.9E+06	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.6E-10	6.4E-06	3.7E-07	NA
beryllium	2.1E-11	3.5E-07	2.0E-07	NA
cadmium	7.7E-11	1.4E-06	8.2E-07	NA
chromium vi	3.7E-10	1.8E-05	1.0E-05	NA
nickel	4.3E-10	1.0E-05	2.9E-07	NA
benzene	7.7E-16	7.0E-10	2.0E-11	NA
bis(2-ethylhexyl)phthalate	4.8E-13	1.3E-06	3.0E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	3.5E-13	2.3E-08	3.9E-07	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.8E-15	9.8E-08	1.7E-06	NA
1,1-dichloroethene	NA	1.4E-08	2.4E-07	NA
1,2-dichloroethane	NA	7.0E-10	1.2E-08	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-12	1.7E-08	3.0E-07	NA
n-nitrosodiphenylamine	1.7E-13	2.4E-07	4.1E-06	NA
n-nitrosodipropylamine	1.5E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	6.5E-08	1.7E-07	3.9E-06	NA
trichloroethene	1.3E-07	3.1E-08	5.4E-07	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	3.4E-12	3.2E-06	5.5E-05	NA
benzo(a)pyrene	4.2E-12	3.9E-06	6.7E-05	NA
benzo(b)fluoranthene	3.0E-12	1.6E-06	2.7E-05	NA
benzo(k)fluoranthene	3.8E-12	1.3E-06	2.3E-05	NA
chrysene	2.2E-12	1.3E-06	2.2E-05	NA
dibenzo(a,h)anthracene	1.4E-12	1.2E-06	2.0E-05	NA
indeno(1,2,3-cd)pyrene	1.7E-12	2.8E-06	4.8E-05	NA
aroclor-1254	2.5E-12	5.6E-07	1.9E-06	NA
aroclor-1260	9.1E-14	9.8E-07	3.4E-06	NA
4,4-ddt	9.1E-15	NA	NA	NA
4,4-dde	3.4E-15	NA	NA	NA
chlordane	6.3E-16	NA	NA	NA
dieldrin	9.8E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	1.1E-10	1.9E-10	NA
octachlorodibenzo-p-dioxin	1.7E-16	3.8E-10	6.6E-10	NA
octachlorodibenzofuran	2.0E-16	4.5E-10	7.8E-10	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-1d
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.6E-02	3.9E+02	NA	2.1E+00
Np_{237+1d}	6.9E-03	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	9.8E-02	1.4E+03	NA	7.5E+00
$Pu_{239/240}$	2.9E-02	3.8E+02	NA	2.1E+00
Ra_{226+5d}	7.6E+00	2.1E+03	NA	1.2E+01
Ra_{228+1d}	7.5E-01	1.9E+04	NA	1.0E+02
Ru_{106}	4.0E-02	NA	NA	NA
Sr_{90+1d}	4.6E-02	1.4E+03	NA	7.6E+00
Tc_{99}	2.0E-01	5.3E+03	NA	2.9E+01
Th_{228+7d}	2.9E-01	2.0E+04	NA	1.1E+02
Th_{230}	6.1E+00	2.0E+04	NA	1.1E+02
Th_{232}	3.4E-01	1.7E+04	NA	9.1E+01
U_{234}	1.5E+01	8.9E+04	NA	4.9E+02
$U_{235/236}$	1.4E+00	6.7E+03	NA	3.7E+01
U_{238+2d}	1.6E+01	2.9E+05	NA	1.6E+03
Rn_{222+4d}	6.2E+06	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	2.0E-10	2.7E-06	1.5E-07	NA
beryllium	2.0E-11	2.9E-07	1.7E-07	NA
cadmium	1.0E-10	2.0E-06	1.2E-06	NA
chromium vi	4.5E-10	8.9E-06	5.1E-06	NA
nickel	5.2E-10	8.7E-06	2.5E-07	NA
benzene	2.7E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.9E-13	3.4E-08	7.7E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	5.6E-14	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.2E-15	1.4E-09	2.4E-08	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.3E-13	4.9E-09	8.4E-08	NA
n-nitrosodiphenylamine	4.8E-13	4.5E-07	7.8E-06	NA
n-nitrosodipropylamine	5.2E-15	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.0E-07	2.3E-09	5.2E-08	NA
trichloroethene	2.1E-07	1.0E-09	1.8E-08	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	8.4E-13	1.9E-08	3.2E-07	NA
benzo(a)pyrene	9.8E-13	2.3E-08	4.0E-07	NA
benzo(b)fluoranthene	1.0E-12	2.7E-08	4.7E-07	NA
benzo(k)fluoranthene	9.8E-13	2.0E-08	3.4E-07	NA
chrysene	9.1E-13	3.3E-08	5.7E-07	NA
dibenzo(a,h)anthracene	2.8E-13	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.9E-13	NA	NA	NA
aroclor-1254	1.4E-12	1.6E-07	5.4E-07	NA
aroclor-1260	3.1E-14	NA	NA	NA
4,4-ddt	4.6E-15	NA	NA	NA
4,4-dde	2.7E-15	NA	NA	NA
chlordane	2.0E-15	NA	NA	NA
dieldrin	1.5E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.6E-16	NA	NA	NA
octachlorodibenzofuran	6.6E-17	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1e
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 5, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.7E-03	1.2E+02	NA	1.1E+00
Np_{237+1d}	4.2E-04	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	9.5E-03	1.1E+02	NA	1.0E+00
$Pu_{239/240}$	4.0E-03	2.5E+02	NA	2.3E+00
Ra_{226+5d}	5.8E-01	NA	NA	NA
Ra_{228+1d}	8.6E-02	5.1E+02	NA	4.6E+00
Ru_{106}	1.5E-03	NA	NA	NA
Sr_{90+1d}	4.7E-03	4.4E+02	NA	4.0E+00
Tc_{99}	3.5E-02	2.4E+03	NA	2.2E+01
Th_{228+7d}	3.7E-02	3.3E+02	NA	3.0E+00
Th_{230}	4.4E-01	1.2E+03	NA	1.1E+01
Th_{232}	3.5E-02	4.6E+02	NA	4.2E+00
U_{234}	1.3E+00	3.2E+04	NA	2.9E+02
$U_{235/236}$	1.1E-01	1.7E+03	NA	1.5E+01
U_{238+2d}	1.4E+00	3.0E+04	NA	2.8E+02
Rn_{222+4d}	2.8E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.6E-11	NA	NA	NA
beryllium	1.9E-12	3.1E-08	1.8E-08	NA
cadmium	9.8E-12	3.7E-07	2.1E-07	NA
chromium vi	3.7E-11	8.4E-07	4.8E-07	NA
nickel	4.5E-11	1.3E-06	3.6E-08	NA
benzene	1.2E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.9E-14	2.8E-08	6.4E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	6.9E-15	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	5.4E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	9.2E-15	1.1E-08	1.9E-07	NA
n-nitrosodiphenylamine	2.6E-14	NA	NA	NA
n-nitrosodipropylamine	2.3E-15	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.7E-08	8.3E-09	1.9E-07	NA
trichloroethene	5.5E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.8E-13	1.3E-07	2.3E-06	NA
benzo(a)pyrene	2.3E-13	7.8E-08	1.4E-06	NA
benzo(b)fluoranthene	3.0E-13	3.8E-07	6.5E-06	NA
benzo(k)fluoranthene	2.5E-13	1.0E-08	1.8E-07	NA
chrysene	2.4E-13	2.3E-07	4.0E-06	NA
dibenzo(a,h)anthracene	8.0E-14	3.0E-09	5.2E-08	NA
indeno(1,2,3-cd)pyrene	2.0E-13	8.8E-09	1.5E-07	NA
aroclor-1254	1.7E-13	2.2E-09	7.6E-09	NA
aroclor-1260	1.4E-14	6.4E-08	2.2E-07	NA
4,4-ddt	1.3E-15	NA	NA	NA
4,4-dde	2.0E-16	NA	NA	NA
chlordane	8.9E-17	NA	NA	NA
dieldrin	8.1E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.9E-17	NA	NA	NA
octachlorodibenzofuran	2.9E-17	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1f
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 6, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation			
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.3E-03	4.9E+01	NA	4.5E-01
Np_{237+1d}	3.5E-04	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	1.0E-02	1.3E+02	NA	1.2E+00
$Pu_{239/240}$	1.9E-03	1.3E+02	NA	1.2E+00
Ra_{226+5d}	3.5E-01	1.6E+03	NA	1.5E+01
Ra_{228+1d}	2.4E-01	8.3E+02	NA	7.6E+00
Ru_{106}	5.1E-04	NA	NA	NA
Sr_{90+1d}	5.9E-03	2.7E+02	NA	2.5E+00
Tc_{99}	1.2E-01	2.0E+04	NA	1.8E+02
Th_{228+7d}	4.0E-02	4.6E+02	NA	4.2E+00
Th_{230}	3.2E+00	9.5E+03	NA	8.6E+01
Th_{232}	1.1E-01	8.8E+02	NA	8.1E+00
U_{234}	2.6E+00	1.4E+05	NA	1.3E+03
$U_{235/236}$	1.7E-01	3.6E+03	NA	3.3E+01
U_{238+2d}	2.3E+00	5.4E+04	NA	4.9E+02
Rn_{222+4d}	1.2E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.6E-11	NA	NA	NA
beryllium	1.8E-12	6.4E-08	3.7E-08	NA
cadmium	7.0E-12	NA	NA	NA
chromium vi	3.2E-11	1.4E-06	8.3E-07	NA
nickel	3.6E-11	1.4E-06	4.0E-08	NA
benzene	1.2E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-14	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	9.8E-15	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	7.9E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.3E-14	6.4E-10	1.1E-08	NA
n-nitrosodiphenylamine	5.0E-15	NA	NA	NA
n-nitrosodipropylamine	2.3E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.5E-09	NA	NA	NA
trichloroethene	7.1E-09	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	6.2E-14	2.9E-08	5.0E-07	NA
benzo(a)pyrene	6.8E-14	4.6E-08	7.9E-07	NA
benzo(b)fluoranthene	7.5E-14	8.8E-08	1.5E-06	NA
benzo(k)fluoranthene	6.4E-14	6.4E-08	1.1E-06	NA
chrysene	5.9E-14	2.9E-08	5.0E-07	NA
dibenzo(a,h)anthracene	2.3E-14	2.0E-08	3.4E-07	NA
indeno(1,2,3-cd)pyrene	4.6E-14	7.3E-08	1.3E-06	NA
aroclor-1254	8.8E-14	5.9E-09	2.0E-08	NA
aroclor-1260	1.4E-15	NA	NA	NA
4,4-ddt	1.8E-16	NA	NA	NA
4,4-dde	1.6E-16	NA	NA	NA
chlordane	2.7E-17	NA	NA	NA
dieldrin	4.4E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.4E-18	NA	NA	NA
octachlorodibenzofuran	2.8E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1g
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 7, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.3E-03	6.6E+01	NA	6.0E-01
Np_{237+1d}	3.0E-04	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	7.2E-03	NA	NA	NA
$Pu_{239/240}$	1.4E-03	NA	NA	NA
Ra_{226+5d}	1.2E+00	1.1E+02	NA	9.6E-01
Ra_{228+1d}	1.9E-01	1.3E+02	NA	1.2E+00
Ru_{106}	5.1E-04	NA	NA	NA
Sr_{90+1d}	4.2E-03	1.2E+02	NA	1.1E+00
Tc_{99}	3.7E-02	1.1E+02	NA	1.0E+00
Th_{228+7d}	2.8E-02	1.4E+02	NA	1.2E+00
Th_{230}	2.4E+00	2.2E+02	NA	2.0E+00
Th_{232}	7.0E-02	1.4E+02	NA	1.3E+00
U_{234}	1.3E+00	1.1E+03	NA	9.9E+00
$U_{235/236}$	9.5E-02	8.2E+01	NA	7.5E-01
U_{238+2d}	1.3E+00	1.2E+03	NA	1.1E+01
Rn_{222+4d}	1.9E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.3E-11	NA	NA	NA
beryllium	1.6E-12	4.8E-08	2.8E-08	NA
cadmium	6.0E-12	9.3E-08	5.3E-08	NA
chromium vi	2.7E-11	6.8E-07	3.9E-07	NA
nickel	3.1E-11	9.3E-07	2.7E-08	NA
benzene	3.2E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.6E-14	2.2E-09	5.1E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	1.2E-14	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.6E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	3.3E-14	5.4E-10	9.3E-09	NA
n-nitrosodiphenylamine	7.0E-15	NA	NA	NA
n-nitrosodipropylamine	6.3E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.3E-09	NA	NA	NA
trichloroethene	1.5E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.1E-13	2.3E-09	4.1E-08	NA
benzo(a)pyrene	1.3E-13	2.5E-09	4.3E-08	NA
benzo(b)fluoranthene	1.2E-13	2.4E-09	4.2E-08	NA
benzo(k)fluoranthene	1.3E-13	2.7E-09	4.7E-08	NA
chrysene	9.1E-14	2.9E-09	5.0E-08	NA
dibenzo(a,h)anthracene	4.4E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	7.5E-14	NA	NA	NA
aroclor-1254	1.8E-13	NA	NA	NA
aroclor-1260	3.9E-15	NA	NA	NA
4,4-ddt	3.7E-16	NA	NA	NA
4,4-dde	1.4E-16	NA	NA	NA
chlordane	2.8E-17	NA	NA	NA
dieldrin	4.0E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.5E-18	NA	NA	NA
octachlorodibenzofuran	8.0E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1h
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 8, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	4.0E-04	6.7E+01	NA	6.2E-01
Np_{237+1d}	1.1E-04	7.1E+01	NA	6.5E-01
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	2.5E-03	NA	NA	NA
$Pu_{239/240}$	5.8E-04	NA	NA	NA
Ra_{226+5d}	7.9E-02	NA	NA	NA
Ra_{228+1d}	1.5E-02	NA	NA	NA
Ru_{106}	4.2E-04	NA	NA	NA
Sr_{90+1d}	6.5E-04	1.2E+02	NA	1.1E+00
Tc_{99}	5.2E-03	1.4E+02	NA	1.3E+00
Th_{228+7d}	8.2E-03	1.4E+02	NA	1.2E+00
Th_{230}	8.6E-02	1.5E+02	NA	1.4E+00
Th_{232}	9.8E-03	NA	NA	NA
U_{234}	2.4E-01	3.5E+02	NA	3.2E+00
$U_{235/236}$	2.3E-02	6.1E+01	NA	5.6E-01
U_{238+2d}	3.2E-01	4.4E+02	NA	4.1E+00
Rn_{222+4d}	5.4E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	6.8E-12	NA	NA	NA
beryllium	7.2E-13	7.8E-08	4.5E-08	NA
cadmium	4.0E-12	8.3E-08	4.8E-08	NA
chromium vi	1.4E-11	6.9E-07	4.0E-07	NA
nickel	1.9E-11	8.3E-07	2.4E-08	NA
benzene	9.0E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.2E-15	2.9E-08	6.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	9.0E-16	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	4.1E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-15	NA	NA	NA
n-nitrosodiphenylamine	5.8E-15	NA	NA	NA
n-nitrosodipropylamine	1.8E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.8E-08	NA	NA	NA
trichloroethene	7.6E-08	2.0E-10	3.4E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.9E-14	2.3E-09	4.1E-08	NA
benzo(a)pyrene	2.3E-14	NA	NA	NA
benzo(b)fluoranthene	2.8E-14	2.7E-09	4.7E-08	NA
benzo(k)fluoranthene	2.4E-14	2.9E-09	5.1E-08	NA
chrysene	2.4E-14	3.8E-09	6.5E-08	NA
dibenzo(a,h)anthracene	7.1E-15	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.8E-14	NA	NA	NA
aroclor-1254	2.3E-14	NA	NA	NA
aroclor-1260	1.1E-15	NA	NA	NA
4,4-ddt	1.2E-16	NA	NA	NA
4,4-dde	3.9E-17	NA	NA	NA
chlordane	2.3E-17	NA	NA	NA
dieldrin	1.9E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.8E-18	NA	NA	NA
octachlorodibenzofuran	2.3E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1i
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 9, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	6.8E-04	9.6E+01	NA	8.8E-01
Np_{237+1d}	2.3E-04	9.5E+01	NA	8.6E-01
Pb_{210+2d}	NA	3.2E+03	NA	3.0E+01
Pu_{238}	3.5E-03	2.6E+01	NA	2.4E-01
$Pu_{239/240}$	7.7E-04	2.6E+01	NA	2.4E-01
Ra_{226+5d}	1.6E-01	3.0E+03	NA	2.8E+01
Ra_{228+1d}	2.6E-02	1.3E+02	NA	1.2E+00
Ru_{106}	1.4E-03	2.7E+02	NA	2.5E+00
Sr_{90+1d}	1.2E-03	1.3E+02	NA	1.2E+00
Tc_{99}	7.0E-03	1.1E+02	NA	9.6E-01
Th_{228+7d}	1.1E-02	7.3E+02	NA	6.6E+00
Th_{230}	2.1E-01	3.1E+03	NA	2.9E+01
Th_{232}	1.6E-02	2.2E+02	NA	2.0E+00
U_{234}	3.2E-01	2.9E+03	NA	2.6E+01
$U_{235/236}$	3.2E-02	1.2E+02	NA	1.1E+00
U_{238+2d}	4.2E-01	6.3E+03	NA	5.7E+01
Rn_{222+4d}	5.8E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	2.5E-11	4.9E-07	2.8E-08	NA
beryllium	1.3E-12	3.6E-08	2.1E-08	NA
cadmium	8.0E-12	2.8E-07	1.6E-07	NA
chromium vi	2.5E-11	7.5E-07	4.3E-07	NA
nickel	3.5E-11	1.1E-06	3.2E-08	NA
benzene	5.6E-18	1.5E-10	4.2E-12	NA
bis(2-ethylhexyl)phthalate	6.8E-15	1.8E-07	4.2E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	1.8E-15	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.7E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.8E-15	1.4E-09	2.4E-08	NA
n-nitrosodiphenylamine	1.1E-14	NA	NA	NA
n-nitrosodipropylamine	1.1E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.8E-08	NA	NA	NA
trichloroethene	3.6E-08	2.9E-10	5.1E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.3E-14	6.4E-08	1.1E-06	NA
benzo(a)pyrene	2.7E-14	4.8E-08	8.3E-07	NA
benzo(b)fluoranthene	2.7E-14	1.2E-07	2.0E-06	NA
benzo(k)fluoranthene	2.6E-14	3.0E-09	5.1E-08	NA
chrysene	2.3E-14	5.4E-08	9.3E-07	NA
dibenzo(a,h)anthracene	7.7E-15	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.8E-14	2.0E-09	3.4E-08	NA
aroclor-1254	3.2E-14	6.8E-10	2.4E-09	NA
aroclor-1260	6.7E-16	NA	NA	NA
4,4-ddt	9.8E-17	NA	NA	NA
4,4-dde	5.5E-17	NA	NA	NA
chlordane	4.5E-17	NA	NA	NA
dieldrin	3.2E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.9E-18	4.4E-11	7.6E-11	NA
octachlorodibenzofuran	1.4E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-1j
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
AREA 10, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	6.4E-04	4.8E+01	NA	4.4E-01
Np_{237+1d}	2.2E-04	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	1.1E-02	NA	NA	NA
$Pu_{239/240}$	1.3E-03	3.5E+01	NA	3.2E-01
Ra_{226+5d}	1.5E-01	1.2E+02	NA	1.1E+00
Ra_{228+1d}	8.8E-02	1.1E+02	NA	9.6E-01
Ru_{106}	3.8E-04	NA	NA	NA
Sr_{90+1d}	1.7E-03	1.2E+02	NA	1.1E+00
Tc_{99}	1.5E-02	1.1E+02	NA	1.0E+00
Th_{228+7d}	1.9E-02	1.0E+02	NA	9.5E-01
Th_{230}	6.6E-01	2.0E+02	NA	1.8E+00
Th_{232}	3.9E-02	7.6E+01	NA	7.0E-01
U_{234}	1.2E+00	4.9E+02	NA	4.4E+00
$U_{235/236}$	8.9E-02	7.1E+01	NA	6.5E-01
U_{238+2d}	1.2E+00	1.2E+03	NA	1.1E+01
Rn_{222+4d}	3.5E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.1E-11	1.1E-06	6.6E-08	NA
beryllium	1.2E-12	7.8E-08	4.5E-08	NA
cadmium	4.4E-12	6.4E-08	3.7E-08	NA
chromium vi	2.1E-11	8.7E-07	5.0E-07	NA
nickel	2.3E-11	NA	NA	NA
benzene	4.9E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	9.5E-15	1.0E-08	2.4E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	2.8E-15	3.4E-10	5.9E-09	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.3E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.8E-15	NA	NA	NA
n-nitrosodiphenylamine	3.0E-15	NA	NA	NA
n-nitrosodipropylamine	9.5E-17	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.4E-09	1.5E-10	3.4E-09	NA
trichloroethene	4.8E-09	9.8E-11	1.7E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.9E-14	3.3E-09	5.7E-08	NA
benzo(a)pyrene	3.1E-14	3.0E-09	5.1E-08	NA
benzo(b)fluoranthene	3.3E-14	3.2E-09	5.6E-08	NA
benzo(k)fluoranthene	2.7E-14	3.8E-09	6.5E-08	NA
chrysene	2.9E-14	4.3E-09	7.4E-08	NA
dibenzo(a,h)anthracene	9.3E-15	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.1E-14	2.4E-09	4.2E-08	NA
aroclor-1254	6.4E-14	NA	NA	NA
aroclor-1260	5.9E-16	NA	NA	NA
4,4-ddt	1.1E-16	NA	NA	NA
4,4-dde	1.4E-16	NA	NA	NA
chlordane	2.1E-17	NA	NA	NA
dieldrin	3.8E-17	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.4E-18	NA	NA	NA
octachlorodibenzofuran	1.2E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-2a
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.5E-11	1.3E-07	7.3E-08	NA
aluminum	3.7E-07	1.3E-02	7.7E-03	NA
antimony	6.8E-10	NA	NA	NA
arsenic	3.9E-10	1.1E-05	6.5E-07	NA
barium	6.7E-09	1.3E-04	7.4E-05	NA
beryllium	4.3E-11	9.4E-07	5.4E-07	NA
boron	NA	NA	NA	NA
cadmium	1.5E-10	1.1E-06	6.2E-07	NA
chromium vi	7.6E-10	1.7E-05	9.8E-06	NA
cobalt	3.9E-10	NA	NA	NA
copper	1.6E-09	8.9E-05	5.1E-06	NA
lead	3.5E-08	5.3E-04	3.1E-04	NA
magnesium	1.2E-06	2.7E-02	1.6E-02	NA
manganese	3.7E-08	1.1E-03	6.5E-04	NA
mercury	2.2E-11	1.7E-07	4.8E-07	NA
molybdenum	3.5E-10	6.8E-06	3.9E-06	NA
nickel	8.6E-10	2.3E-05	6.7E-07	NA
selenium	4.1E-11	4.1E-07	2.4E-07	NA
silver	3.3E-10	4.8E-06	NA	NA
thallium	1.1E-11	3.6E-07	2.1E-07	NA
uranium-total	1.9E-07	1.1E-04	6.2E-05	NA
vanadium	9.6E-10	2.6E-05	1.5E-06	NA
zinc	4.9E-09	1.3E-04	7.3E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.5E-13	1.2E-07	2.7E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	3.5E-15	NA	NA	NA
1,1-dichloroethane	NA	1.6E-08	2.7E-07	NA
1,1-dichloroethene	NA	5.9E-09	1.0E-07	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	4.4E-06	7.6E-05	NA
methylene chloride	2.7E-13	1.3E-08	2.2E-07	NA
pyrene	NA	3.3E-06	5.7E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	2.7E-06	4.7E-05	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	7.6E-08	9.8E-10	2.3E-08	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	9.8E-08	1.7E-06	NA
4,4-ddt	8.0E-15	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	3.3E-15	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-2b
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.9E-11	6.8E-07	3.9E-07	NA
aluminum	5.1E-07	1.2E-02	6.7E-03	NA
antimony	1.1E-09	2.1E-05	1.2E-05	NA
arsenic	5.5E-10	1.2E-05	6.9E-07	NA
barium	1.1E-08	3.3E-04	1.9E-04	NA
beryllium	6.3E-11	1.5E-06	8.4E-07	NA
boron	NA	NA	NA	NA
cadmium	2.0E-10	6.1E-06	3.5E-06	NA
chromium vi	1.1E-09	2.9E-05	1.7E-05	NA
cobalt	5.5E-10	NA	NA	NA
copper	1.7E-09	3.8E-05	2.2E-06	NA
lead	2.5E-08	3.8E-05	2.2E-05	NA
magnesium	1.5E-06	NA	NA	NA
manganese	5.3E-08	NA	NA	NA
mercury	3.7E-11	1.1E-06	3.1E-06	NA
molybdenum	4.9E-10	9.8E-06	5.6E-06	NA
nickel	1.2E-09	2.6E-05	7.4E-07	NA
selenium	7.2E-11	1.1E-06	6.5E-07	NA
silver	4.7E-10	4.6E-06	NA	NA
thallium	1.6E-11	NA	NA	NA
uranium-total	1.7E-07	1.0E-03	5.8E-04	NA
vanadium	1.3E-09	2.7E-05	1.5E-06	NA
zinc	6.8E-09	1.5E-04	8.6E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.5E-13	2.5E-07	5.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	3.5E-15	NA	NA	NA
1,1-dichloroethane	NA	3.9E-09	6.8E-08	NA
1,1-dichloroethene	NA	3.9E-09	6.8E-08	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.5E-06	6.1E-05	NA
methylene chloride	4.1E-13	2.0E-08	3.4E-07	NA
pyrene	NA	2.9E-06	5.1E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	3.5E-06	6.1E-05	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.1E-07	1.2E-08	2.7E-07	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	9.8E-10	1.7E-08	NA
4,4-ddt	1.2E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	4.9E-15	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2c
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.5E-11	6.2E-07	3.5E-07	NA
aluminum	4.5E-07	9.5E-03	5.4E-03	NA
antimony	7.6E-10	NA	NA	NA
arsenic	4.5E-10	1.8E-05	1.0E-06	NA
barium	7.4E-09	3.5E-04	2.0E-04	NA
beryllium	5.9E-11	9.9E-07	5.7E-07	NA
boron	NA	NA	NA	NA
cadmium	2.2E-10	4.0E-06	2.3E-06	NA
chromium vi	1.0E-09	4.9E-05	2.8E-05	NA
cobalt	4.9E-10	1.1E-05	6.1E-06	NA
copper	2.2E-09	8.6E-05	4.9E-06	NA
lead	1.4E-08	1.8E-04	1.0E-04	NA
magnesium	1.4E-06	NA	NA	NA
manganese	4.7E-08	9.1E-04	5.2E-04	NA
mercury	2.3E-11	4.7E-07	1.4E-06	NA
molybdenum	4.5E-10	4.5E-06	2.6E-06	NA
nickel	1.2E-09	2.8E-05	8.2E-07	NA
selenium	4.5E-11	1.9E-06	1.1E-06	NA
silver	3.7E-10	7.2E-06	NA	NA
thallium	1.7E-11	3.8E-07	2.2E-07	NA
uranium-total	1.1E-07	6.0E-04	3.5E-04	NA
vanadium	1.2E-09	2.5E-05	1.4E-06	NA
zinc	1.1E-08	3.7E-04	2.1E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	3.6E-06	8.3E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.1E-14	2.7E-07	4.7E-06	NA
1,1-dichloroethane	NA	2.2E-08	3.7E-07	NA
1,1-dichloroethene	NA	3.8E-08	6.6E-07	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	4.9E-06	8.4E-05	NA
methylene chloride	4.1E-12	4.9E-08	8.4E-07	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	3.0E-06	5.2E-05	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.8E-07	4.7E-07	1.1E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	1.2E-07	2.0E-06	NA
4,4-ddt	2.5E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.7E-15	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-2d
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.7E-11	1.5E-06	8.4E-07	NA
aluminum	6.3E-07	1.2E-02	6.8E-03	NA
antimony	1.7E-09	4.0E-05	2.3E-05	NA
arsenic	5.7E-10	7.4E-06	4.3E-07	NA
barium	9.0E-09	9.4E-05	5.4E-05	NA
beryllium	5.7E-11	8.1E-07	4.6E-07	NA
boron	NA	NA	NA	NA
cadmium	2.9E-10	5.7E-06	3.3E-06	NA
chromium vi	1.3E-09	2.5E-05	1.4E-05	NA
cobalt	6.3E-10	1.6E-05	9.4E-06	NA
copper	2.0E-09	2.3E-05	1.3E-06	NA
lead	7.2E-09	5.3E-05	3.0E-05	NA
magnesium	1.4E-06	NA	NA	NA
manganese	5.1E-08	NA	NA	NA
mercury	2.7E-11	2.0E-07	5.6E-07	NA
molybdenum	4.5E-10	4.1E-06	2.4E-06	NA
nickel	1.4E-09	2.4E-05	7.0E-07	NA
selenium	8.0E-11	5.1E-07	2.9E-07	NA
silver	5.5E-10	4.5E-06	NA	NA
thallium	2.2E-11	4.9E-07	2.8E-07	NA
uranium-total	8.0E-08	1.1E-03	6.5E-04	NA
vanadium	1.5E-09	2.7E-05	1.6E-06	NA
zinc	8.4E-09	1.0E-04	5.9E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.3E-13	9.4E-08	2.2E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	3.3E-15	3.9E-09	6.8E-08	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.4E-07	2.4E-06	NA
methylene chloride	3.7E-13	1.4E-08	2.4E-07	NA
pyrene	NA	9.8E-08	1.7E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	9.8E-08	1.7E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	2.9E-07	6.4E-09	1.5E-07	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	4.9E-09	8.4E-08	NA
4,4-ddt	1.3E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	4.1E-15	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2e
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 5, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.5E-12	1.6E-07	9.5E-08	NA
aluminum	5.5E-08	1.2E-03	7.2E-04	NA
antimony	9.9E-11	4.2E-07	2.4E-07	NA
arsenic	4.4E-11	NA	NA	NA
barium	6.8E-10	1.1E-05	6.5E-06	NA
beryllium	5.2E-12	8.6E-08	5.0E-08	NA
boron	NA	NA	NA	NA
cadmium	2.7E-11	1.0E-06	6.0E-07	NA
chromium vi	1.0E-10	2.3E-06	1.3E-06	NA
cobalt	5.8E-11	2.2E-06	1.2E-06	NA
copper	1.7E-10	7.2E-06	4.2E-07	NA
lead	7.9E-10	1.4E-05	7.9E-06	NA
magnesium	1.5E-07	NA	NA	NA
manganese	4.7E-09	2.0E-04	1.2E-04	NA
mercury	1.5E-12	NA	NA	NA
molybdenum	4.7E-11	6.3E-07	3.6E-07	NA
nickel	1.3E-10	3.5E-06	1.0E-07	NA
selenium	5.8E-12	1.1E-07	6.4E-08	NA
silver	4.7E-11	1.0E-06	NA	NA
thallium	2.5E-12	NA	NA	NA
uranium-total	6.8E-09	7.1E-05	4.1E-05	NA
vanadium	1.3E-10	NA	NA	NA
zinc	1.9E-09	2.9E-04	1.7E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-13	7.8E-08	1.8E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.5E-15	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	5.2E-07	9.0E-06	NA
methylene chloride	2.6E-14	3.0E-08	5.2E-07	NA
pyrene	NA	9.3E-07	1.6E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	3.0E-07	5.2E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	7.7E-08	2.3E-08	5.4E-07	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	3.6E-15	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.3E-16	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2f
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 6, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.0E-12	1.2E-07	6.9E-08	NA
aluminum	4.1E-08	3.2E-03	1.8E-03	NA
antimony	7.1E-11	2.9E-06	1.7E-06	NA
arsenic	4.4E-11	NA	NA	NA
barium	5.5E-10	2.4E-05	1.4E-05	NA
beryllium	4.9E-12	1.8E-07	1.0E-07	NA
boron	NA	NA	NA	NA
cadmium	2.0E-11	NA	NA	NA
chromium vi	9.0E-11	4.1E-06	2.3E-06	NA
cobalt	4.4E-11	2.2E-06	1.2E-06	NA
copper	1.8E-10	3.3E-06	1.9E-07	NA
lead	3.6E-09	7.8E-05	4.5E-05	NA
magnesium	1.6E-07	2.9E-03	1.7E-03	NA
manganese	4.7E-09	2.8E-04	1.6E-04	NA
mercury	1.8E-12	1.6E-08	4.7E-08	NA
molybdenum	3.6E-11	1.2E-06	6.7E-07	NA
nickel	1.0E-10	3.9E-06	1.1E-07	NA
selenium	2.6E-12	NA	NA	NA
silver	3.0E-11	2.5E-07	NA	NA
thallium	1.3E-12	6.4E-08	3.7E-08	NA
uranium-total	8.8E-09	2.3E-04	1.3E-04	NA
vanadium	1.1E-10	6.5E-06	3.7E-07	NA
zinc	6.0E-10	5.9E-05	3.4E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.8E-14	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	2.2E-16	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.9E-08	5.0E-07	NA
methylene chloride	3.6E-14	1.8E-09	3.1E-08	NA
pyrene	NA	4.0E-08	6.9E-07	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	8.1E-09	1.4E-07	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	9.9E-09	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	4.9E-16	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.2E-16	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2g
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 7, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.1E-12	5.8E-08	3.3E-08	NA
aluminum	3.3E-08	1.3E-03	7.5E-04	NA
antimony	5.2E-11	5.1E-07	2.9E-07	NA
arsenic	3.6E-11	NA	NA	NA
barium	4.9E-10	1.9E-05	1.1E-05	NA
beryllium	4.4E-12	1.3E-07	7.7E-08	NA
boron	NA	NA	NA	NA
cadmium	1.7E-11	2.6E-07	1.5E-07	NA
chromium vi	7.7E-11	1.9E-06	1.1E-06	NA
cobalt	3.6E-11	1.9E-06	1.1E-06	NA
copper	1.6E-10	2.1E-06	1.2E-07	NA
lead	1.5E-09	3.5E-06	2.0E-06	NA
magnesium	1.1E-07	8.1E-03	4.7E-03	NA
manganese	3.6E-09	2.5E-04	1.5E-04	NA
mercury	1.4E-12	NA	NA	NA
molybdenum	3.3E-11	1.7E-06	9.8E-07	NA
nickel	8.8E-11	2.6E-06	7.5E-08	NA
selenium	2.7E-12	NA	NA	NA
silver	2.7E-11	6.6E-08	NA	NA
thallium	1.3E-12	NA	NA	NA
uranium-total	5.2E-09	7.2E-06	4.2E-06	NA
vanadium	8.8E-11	4.2E-06	2.4E-07	NA
zinc	8.8E-10	7.7E-06	4.5E-06	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.4E-14	6.2E-09	1.4E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	4.4E-16	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.4E-08	2.4E-07	NA
methylene chloride	9.3E-14	1.5E-09	2.6E-08	NA
pyrene	NA	1.3E-08	2.2E-07	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	5.6E-09	9.7E-08	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	2.1E-08	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	1.0E-15	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.1E-16	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2h
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 8, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	7.9E-13	7.3E-08	4.2E-08	NA
aluminum	1.9E-08	1.4E-03	7.8E-04	NA
antimony	4.1E-11	4.4E-07	2.5E-07	NA
arsenic	1.9E-11	NA	NA	NA
barium	2.2E-10	1.4E-05	8.0E-06	NA
beryllium	2.0E-12	2.2E-07	1.3E-07	NA
boron	NA	2.0E-06	1.1E-06	NA
cadmium	1.1E-11	2.3E-07	1.3E-07	NA
chromium vi	3.8E-11	1.9E-06	1.1E-06	NA
cobalt	2.2E-11	1.6E-06	9.5E-07	NA
copper	5.2E-11	2.2E-06	1.3E-07	NA
lead	2.2E-10	3.1E-06	1.8E-06	NA
magnesium	6.3E-08	2.4E-03	1.4E-03	NA
manganese	1.8E-09	1.3E-04	7.5E-05	NA
mercury	3.6E-13	NA	NA	NA
molybdenum	1.6E-11	1.6E-06	9.2E-07	NA
nickel	5.2E-11	2.3E-06	6.7E-08	NA
selenium	1.8E-12	1.1E-07	6.1E-08	NA
silver	1.8E-11	5.3E-07	NA	NA
thallium	9.0E-13	9.2E-08	5.3E-08	NA
uranium-total	1.4E-09	2.0E-06	1.2E-06	NA
vanadium	4.9E-11	NA	NA	NA
zinc	6.6E-10	9.3E-06	5.4E-06	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.0E-14	8.1E-08	1.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.2E-16	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.2E-08	3.8E-07	NA
methylene chloride	4.1E-15	NA	NA	NA
pyrene	NA	1.8E-08	3.1E-07	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	1.3E-08	2.2E-07	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.1E-07	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	3.3E-16	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	5.2E-17	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2i
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 9, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.2E-12	NA	NA	NA
aluminum	3.8E-08	1.4E-03	7.8E-04	NA
antimony	1.1E-10	4.1E-06	2.4E-06	NA
arsenic	7.1E-11	1.4E-06	7.9E-08	NA
barium	4.1E-10	9.6E-06	5.5E-06	NA
beryllium	3.6E-12	1.0E-07	5.8E-08	NA
boron	NA	NA	NA	NA
cadmium	2.2E-11	7.9E-07	4.6E-07	NA
chromium vi	7.1E-11	2.1E-06	1.2E-06	NA
cobalt	4.1E-11	NA	NA	NA
copper	9.3E-11	2.6E-06	1.5E-07	NA
lead	3.0E-10	2.6E-06	1.5E-06	NA
magnesium	9.0E-08	NA	NA	NA
manganese	4.7E-09	NA	NA	NA
mercury	7.1E-13	NA	NA	NA
molybdenum	2.1E-11	7.1E-07	4.1E-07	NA
nickel	9.9E-11	3.1E-06	8.8E-08	NA
selenium	3.3E-12	1.2E-07	6.6E-08	NA
silver	3.8E-11	6.2E-07	NA	NA
thallium	1.6E-12	NA	NA	NA
uranium-total	1.9E-09	1.1E-05	6.3E-06	NA
vanadium	9.3E-11	3.3E-06	1.9E-07	NA
zinc	3.8E-10	1.1E-05	6.3E-06	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.9E-14	5.1E-07	1.2E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	7.7E-17	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-07	5.9E-06	NA
methylene chloride	1.3E-14	3.8E-09	6.6E-08	NA
pyrene	NA	3.7E-07	6.4E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	9.3E-07	1.6E-05	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	4.9E-08	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	2.7E-16	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	9.0E-17	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-2j
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
AREA 10, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.3E-12	1.2E-07	7.2E-08	NA
aluminum	3.0E-08	1.1E-03	6.3E-04	NA
antimony	4.7E-11	5.6E-07	3.2E-07	NA
arsenic	3.0E-11	3.2E-06	1.8E-07	NA
barium	3.8E-10	1.1E-05	6.1E-06	NA
beryllium	3.3E-12	2.2E-07	1.3E-07	NA
boron	NA	NA	NA	NA
cadmium	1.2E-11	1.8E-07	1.0E-07	NA
chromium vi	5.8E-11	2.4E-06	1.4E-06	NA
cobalt	3.0E-11	NA	NA	NA
copper	1.5E-10	2.0E-06	1.1E-07	NA
lead	3.8E-09	3.0E-04	1.7E-04	NA
magnesium	9.9E-08	3.6E-03	2.1E-03	NA
manganese	3.0E-09	1.1E-04	6.4E-05	NA
mercury	1.1E-12	7.8E-08	2.2E-07	NA
molybdenum	2.5E-11	4.9E-07	2.8E-07	NA
nickel	6.3E-11	NA	NA	NA
selenium	2.2E-12	4.0E-08	2.3E-08	NA
silver	2.4E-11	1.8E-07	NA	NA
thallium	8.5E-13	NA	NA	NA
uranium-total	5.4E-09	8.1E-06	4.6E-06	NA
vanadium	7.4E-11	NA	NA	NA
zinc	3.6E-10	8.5E-06	4.9E-06	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.7E-14	2.9E-08	6.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	9.2E-17	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.6E-08	4.5E-07	NA
methylene chloride	1.3E-14	NA	NA	NA
pyrene	NA	2.1E-08	3.5E-07	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	1.5E-08	2.6E-07	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	6.7E-09	4.1E-10	9.5E-09	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	3.0E-16	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.1E-16	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-3a
INTAKES FOR CARCINOGENS FOR VISITOR AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Contaminants of Concern	Inhalation	Exposure
Radionuclides	pCi/life	pCi/life
Cs_{137+1d}	5.0E-03	NA
Np_{237+1d}	1.7E-03	NA
Pb_{210+2d}	NA	NA
Pu_{238}	1.0E-01	9.3E-01
$Pu_{239/240}$	1.1E-02	NA
Ra_{226+5d}	6.9E-01	3.7E+00
Ra_{228+1d}	5.9E-01	NA
Ru_{106}	1.6E-03	NA
Sr_{90+1d}	1.1E-02	2.4E+00
Tc_{99}	5.9E-02	NA
Th_{228+7d}	1.4E-01	NA
Th_{230}	2.9E+00	5.2E+00
Th_{232}	3.4E-01	NA
U_{234}	9.7E+00	4.0E+01
$U_{235/236}$	7.5E-01	2.7E+00
U_{238+2d}	1.0E+01	5.9E+01
Rn_{222+4d}	1.2E+05	NA
Chemicals	mg/Kg/day	
arsenic	3.5E-11	NA
beryllium	3.8E-12	NA
cadmium	1.3E-11	NA
chromium vi	6.8E-11	NA
nickel	7.7E-11	NA
benzene	2.3E-17	NA
bis(2-ethylhexyl)phthalate	4.0E-14	NA
bromodichloromethane	NA	NA
carbazole	2.1E-14	NA
carbon tetrachloride	NA	NA
chloroform	3.1E-16	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	2.4E-14	NA
n-nitrosodiphenylamine	1.3E-14	NA
n-nitrosodipropylamine	4.4E-16	NA
pentachlorophenol	NA	NA
tetrachloroethene	6.8E-09	NA
trichloroethene	1.4E-08	NA
vinyl chloride	NA	NA
benzo(a)anthracene	1.7E-13	NA
benzo(a)pyrene	1.9E-13	NA
benzo(b)fluoranthene	1.9E-13	NA
benzo(k)fluoranthene	1.6E-13	NA
chrysene	1.7E-13	NA
dibenzo(a,h)anthracene	5.4E-14	NA
indeno(1,2,3-cd)pyrene	1.2E-13	NA
aroclor-1254	5.1E-13	NA
aroclor-1260	2.6E-15	NA
4,4-ddt	7.2E-16	NA
4,4-dde	1.2E-15	NA
chlordane	1.3E-16	NA
dieldrin	3.0E-16	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	1.1E-17	NA
octachlorodibenzofuran	5.6E-18	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-3b
INTAKES FOR CARCINOGENS FOR VISITOR AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Contaminants of Concern	Inhalation	Exposure
Radionuclides	pCi/life	pCi/life
Cs_{137+1d}	5.9E-03	1.7E+00
Np_{237+1d}	3.4E-03	1.0E+00
Pb_{210+2d}	NA	NA
Pu_{238}	9.4E-02	8.7E+00
$Pu_{239/240}$	1.2E-02	2.4E+00
Ra_{226+5d}	1.1E+00	2.4E+00
Ra_{228+1d}	6.6E-01	7.1E+01
Ru_{106}	4.7E-03	NA
Sr_{90+1d}	1.4E-02	1.4E+00
Tc_{99}	6.9E-02	7.3E+00
Th_{228+7d}	1.5E-01	3.7E+01
Th_{230}	4.1E+00	1.5E+02
Th_{232}	2.9E-01	5.1E+01
U_{234}	1.1E+01	1.1E+03
$U_{235/236}$	8.8E-01	9.0E+01
U_{238+2d}	1.1E+01	1.1E+03
Rn_{222+4d}	1.8E+05	NA
Chemicals	mg/Kg/day	
arsenic	4.9E-11	NA
beryllium	5.6E-12	NA
cadmium	1.7E-11	NA
chromium vi	9.6E-11	NA
nickel	1.1E-10	NA
benzene	3.5E-17	NA
bis(2-ethylhexyl)phthalate	5.8E-14	NA
bromodichloromethane	NA	NA
carbazole	2.3E-14	NA
carbon tetrachloride	NA	NA
chloroform	3.1E-16	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	3.7E-14	NA
n-nitrosodiphenylamine	3.0E-14	NA
n-nitrosodipropylamine	6.8E-16	NA
pentachlorophenol	NA	NA
tetrachloroethene	9.4E-09	NA
trichloroethene	1.9E-08	NA
vinyl chloride	NA	NA
benzo(a)anthracene	3.1E-13	NA
benzo(a)pyrene	3.3E-13	NA
benzo(b)fluoranthene	3.7E-13	NA
benzo(k)fluoranthene	2.4E-13	NA
chrysene	3.1E-13	NA
dibenzo(a,h)anthracene	9.4E-14	NA
indeno(1,2,3-cd)pyrene	2.3E-13	NA
aroclor-1254	6.8E-13	NA
aroclor-1260	4.2E-15	NA
4,4-ddt	1.1E-15	NA
4,4-dde	1.7E-15	NA
chlordane	2.3E-16	NA
dieldrin	4.4E-16	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	2.3E-17	NA
octachlorodibenzofuran	8.7E-18	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-3c
INTAKES FOR CARCINOGENS FOR VISITOR AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Contaminants of Concern	Inhalation	Exposure
Radionuclides	pCi/life	pCi/life
Cs_{137+1d}	5.6E-03	1.4E+00
Np_{237+1d}	2.2E-03	NA
Pb_{210+2d}	NA	NA
Pu_{238}	3.4E-02	NA
$Pu_{239/240}$	6.2E-03	2.2E+00
Ra_{226+5d}	6.2E+00	6.8E+00
Ra_{228+1d}	5.9E-01	1.2E+01
Ru_{106}	2.4E-03	NA
Sr_{90+1d}	1.8E-02	4.9E+00
Tc_{99}	8.7E-02	7.3E+00
Th_{228+7d}	1.1E-01	7.3E+00
Th_{230}	6.2E+00	3.3E+01
Th_{232}	2.5E-01	7.3E+00
U_{234}	5.6E+00	3.3E+02
$U_{235/236}$	4.7E-01	1.5E+01
U_{238+2d}	6.2E+00	3.5E+02
Rn_{222+4d}	1.5E+06	NA
Chemicals	mg/Kg/day	
arsenic	4.0E-11	NA
beryllium	5.2E-12	NA
cadmium	1.9E-11	NA
chromium vi	9.3E-11	NA
nickel	1.1E-10	NA
benzene	1.9E-16	NA
bis(2-ethylhexyl)phthalate	1.2E-13	NA
bromodichloromethane	NA	NA
carbazole	8.7E-14	NA
carbon tetrachloride	NA	NA
chloroform	9.6E-16	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	3.7E-13	NA
n-nitrosodiphenylamine	4.2E-14	NA
n-nitrosodipropylamine	3.8E-15	NA
pentachlorophenol	NA	NA
tetrachloroethene	1.6E-08	NA
trichloroethene	3.3E-08	NA
vinyl chloride	NA	NA
benzo(a)anthracene	8.6E-13	NA
benzo(a)pyrene	1.0E-12	NA
benzo(b)fluoranthene	7.5E-13	NA
benzo(k)fluoranthene	9.4E-13	NA
chrysene	5.4E-13	NA
dibenzo(a,h)anthracene	3.5E-13	NA
indeno(1,2,3-cd)pyrene	4.2E-13	NA
aroclor-1254	6.3E-13	NA
aroclor-1260	2.3E-14	NA
4,4-ddt	2.3E-15	NA
4,4-dde	8.4E-16	NA
chlordane	1.6E-16	NA
dieldrin	2.4E-16	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	4.4E-17	NA
octachlorodibenzofuran	4.9E-17	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-3d
INTAKES FOR CARCINOGENS FOR VISITOR
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Contaminants of Concern	Inhalation	Exposure
Radionuclides	pCi/life	pCi/life
Cs_{137+1d}	4.1E-03	8.9E-01
Np_{237+1d}	1.7E-03	NA
Pb_{210+2d}	NA	NA
Pu_{238}	2.4E-02	3.1E+00
$Pu_{239/240}$	7.2E-03	8.6E-01
Ra_{226+5d}	1.9E+00	4.9E+00
Ra_{228+1d}	1.9E-01	4.4E+01
Ru_{106}	1.0E-02	NA
Sr_{90+1d}	1.2E-02	3.2E+00
Tc_{99}	5.0E-02	1.2E+01
Th_{228+7d}	7.2E-02	4.5E+01
Th_{230}	1.5E+00	4.5E+01
Th_{232}	8.4E-02	3.8E+01
U_{234}	3.7E+00	2.0E+02
$U_{235/236}$	3.4E-01	1.5E+01
U_{238+2d}	4.1E+00	6.5E+02
Rn_{222+4d}	1.5E+06	NA
Chemicals	mg/Kg/day	
arsenic	5.1E-11	NA
beryllium	5.1E-12	NA
cadmium	2.6E-11	NA
chromium vi	1.1E-10	NA
nickel	1.3E-10	NA
benzene	6.6E-17	NA
bis(2-ethylhexyl)phthalate	4.7E-14	NA
bromodichloromethane	NA	NA
carbazole	1.4E-14	NA
carbon tetrachloride	NA	NA
chloroform	3.0E-16	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	3.3E-14	NA
n-nitrosodiphenylamine	1.2E-13	NA
n-nitrosodipropylamine	1.3E-15	NA
pentachlorophenol	NA	NA
tetrachloroethene	2.6E-08	NA
trichloroethene	5.2E-08	NA
vinyl chloride	NA	NA
benzo(a)anthracene	2.1E-13	NA
benzo(a)pyrene	2.4E-13	NA
benzo(b)fluoranthene	2.6E-13	NA
benzo(k)fluoranthene	2.4E-13	NA
chrysene	2.3E-13	NA
dibenzo(a,h)anthracene	7.0E-14	NA
indeno(1,2,3-cd)pyrene	1.7E-13	NA
aroclor-1254	3.5E-13	NA
aroclor-1260	7.9E-15	NA
4,4-ddt	1.2E-15	NA
4,4-dde	6.6E-16	NA
chlordane	5.1E-16	NA
dieldrin	3.7E-16	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	8.9E-17	NA
octachlorodibenzofuran	1.6E-17	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-4a
INTAKES FOR TOXICANTS FOR VISITOR
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:	Inhalation	External Exposure
Toxicants	mg/Kg/day	
cyanide	6.4E-12	NA
aluminum	9.3E-08	NA
antimony	1.7E-10	NA
arsenic	9.8E-11	NA
barium	1.7E-09	NA
beryllium	1.1E-11	NA
boron	NA	NA
cadmium	3.8E-11	NA
chromium vi	1.9E-10	NA
cobalt	9.8E-11	NA
copper	4.1E-10	NA
lead	8.8E-09	NA
magnesium	2.9E-07	NA
manganese	9.3E-09	NA
mercury	5.4E-12	NA
molybdenum	8.8E-11	NA
nickel	2.2E-10	NA
selenium	1.0E-11	NA
silver	8.3E-11	NA
thallium	2.8E-12	NA
uranium-total	4.6E-08	NA
vanadium	2.4E-10	NA
zinc	1.2E-09	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	1.1E-13	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	8.8E-16	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	6.8E-14	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	1.9E-08	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4;4-ddt	2.0E-15	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	8.3E-16	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
sulfate	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-4b
INTAKES FOR TOXICANTS FOR VISITOR
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:	Inhalation	External Exposure
Toxicants	mg/Kg/day	
cyanide	7.3E-12	NA
aluminum	1.3E-07	NA
antimony	2.7E-10	NA
arsenic	1.4E-10	NA
barium	2.7E-09	NA
beryllium	1.6E-11	NA
boron	NA	NA
cadmium	4.9E-11	NA
chromium vi	2.7E-10	NA
cobalt	1.4E-10	NA
copper	4.3E-10	NA
lead	6.4E-09	NA
magnesium	3.7E-07	NA
manganese	1.3E-08	NA
mercury	9.3E-12	NA
molybdenum	1.2E-10	NA
nickel	3.1E-10	NA
selenium	1.8E-11	NA
silver	1.2E-10	NA
thallium	4.1E-12	NA
uranium-total	4.3E-08	NA
vanadium	3.2E-10	NA
zinc	1.7E-09	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-13	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	8.8E-16	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	1.0E-13	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	2.6E-08	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	3.0E-15	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	1.2E-15	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
sulfate	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-4c
INTAKES FOR TOXICANTS FOR VISITOR AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:	Inhalation	External Exposure
Toxicants	mg/Kg/day	
cyanide	6.4E-12	NA
aluminum	1.1E-07	NA
antimony	1.9E-10	NA
arsenic	1.1E-10	NA
barium	1.9E-09	NA
beryllium	1.5E-11	NA
boron	NA	NA
cadmium	5.4E-11	NA
chromium vi	2.6E-10	NA
cobalt	1.2E-10	NA
copper	5.4E-10	NA
lead	3.4E-09	NA
magnesium	3.4E-07	NA
manganese	1.2E-08	NA
mercury	5.9E-12	NA
molybdenum	1.1E-10	NA
nickel	3.0E-10	NA
selenium	1.1E-11	NA
silver	9.3E-11	NA
thallium	4.4E-12	NA
uranium-total	2.7E-08	NA
vanadium	3.0E-10	NA
zinc	2.8E-09	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	3.3E-13	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	2.7E-15	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	1.0E-12	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	4.5E-08	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	6.4E-15	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	6.8E-16	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
sulfate	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-4d
INTAKES FOR TOXICANTS FOR VISITOR
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:	Inhalation	External Exposure
Toxicants	mg/Kg/day	
cyanide	6.8E-12	NA
aluminum	1.6E-07	NA
antimony	4.2E-10	NA
arsenic	1.4E-10	NA
barium	2.3E-09	NA
beryllium	1.4E-11	NA
boron	NA	NA
cadmium	7.3E-11	NA
chromium vi	3.2E-10	NA
cobalt	1.6E-10	NA
copper	4.9E-10	NA
lead	1.8E-09	NA
magnesium	3.4E-07	NA
manganese	1.3E-08	NA
mercury	6.8E-12	NA
molybdenum	1.1E-10	NA
nickel	3.6E-10	NA
selenium	2.0E-11	NA
silver	1.4E-10	NA
thallium	5.4E-12	NA
uranium-total	2.0E-08	NA
vanadium	3.8E-10	NA
zinc	2.1E-09	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-13	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	8.3E-16	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	9.3E-14	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	7.3E-08	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	3.2E-15	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	1.0E-15	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
sulfate	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-5a

INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH AREA 5, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+14}	2.1E-04	1.7E+01	NA	3.0E-01	NA	NA	NA	NA	NA
Np_{237+14}	5.0E-05	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+24}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.1E-03	1.5E+01	NA	2.8E-01	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.8E-04	3.4E+01	NA	6.2E-01	NA	NA	NA	NA	NA
Ra_{224+54}	6.8E-02	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+14}	1.0E-02	6.9E+01	NA	1.2E+00	NA	NA	NA	NA	NA
Ru_{106}	1.8E-04	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+14}	5.6E-04	5.9E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Tc_{99}	4.1E-03	3.2E+02	NA	5.8E+00	NA	NA	NA	NA	NA
Th_{228+74}	4.4E-03	4.5E+01	NA	8.0E-01	NA	NA	NA	NA	NA
Th_{230}	5.2E-02	1.6E+02	NA	2.9E+00	NA	NA	NA	NA	NA
Th_{232}	4.1E-03	6.2E+01	NA	1.1E+00	NA	NA	NA	NA	NA
U_{234}	1.6E-01	4.3E+03	NA	7.7E+01	NA	NA	NA	NA	NA
$U_{235/236}$	1.3E-02	2.3E+02	NA	4.1E+00	NA	NA	NA	NA	NA
U_{238+24}	1.7E-01	4.1E+03	NA	7.4E+01	NA	NA	NA	NA	NA
Rn_{222+44}	3.4E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.6E-13	6.8E-09	1.5E-08	NA	NA	NA	NA	NA	NA
cadmium	1.9E-12	8.2E-08	1.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	7.2E-12	1.8E-07	4.1E-07	NA	NA	NA	NA	NA	NA
nickel	8.7E-12	2.8E-07	3.1E-08	NA	NA	NA	NA	NA	NA
benzene	2.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.1E-14	6.2E-09	5.4E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-15	2.4E-09	1.6E-07	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	5.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.3E-09	1.8E-09	1.6E-07	NA	NA	NA	NA	NA	NA
trichloroethene	1.1E-08	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.4E-14	2.9E-08	1.9E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.5E-14	1.7E-08	1.1E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.8E-14	8.3E-08	5.5E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.9E-14	2.3E-09	1.5E-07	NA	NA	NA	NA	NA	NA
chrysene	4.7E-14	5.1E-08	3.4E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.5E-14	6.7E-10	4.4E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.8E-14	1.9E-09	1.3E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	3.2E-14	4.9E-10	6.4E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	2.6E-15	1.4E-08	1.9E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	3.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.7E-18	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5b
INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 6, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation								
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.6E-04	6.6E+00	NA	1.2E-01	NA	NA	NA	NA	NA
Np_{237+1d}	4.1E-05	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239}	1.2E-03	1.8E+01	NA	3.2E-01	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.3E-04	1.8E+01	NA	3.2E-01	NA	NA	NA	NA	NA
Ra_{226+5d}	4.1E-02	2.2E+02	NA	4.0E+00	NA	NA	NA	NA	NA
Ra_{228+1d}	2.9E-02	1.1E+02	NA	2.0E+00	NA	NA	NA	NA	NA
Ru_{106}	6.0E-05	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.0E-04	3.7E+01	NA	6.7E-01	NA	NA	NA	NA	NA
Tc_{99}	1.4E-02	2.7E+03	NA	4.9E+01	NA	NA	NA	NA	NA
Th_{228+7d}	4.8E-03	6.2E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{230}	3.7E-01	1.3E+03	NA	2.3E+01	NA	NA	NA	NA	NA
Th_{232}	1.3E-02	1.2E+02	NA	2.2E+00	NA	NA	NA	NA	NA
U_{234}	3.1E-01	1.9E+04	NA	3.5E+02	NA	NA	NA	NA	NA
$U_{235/236}$	2.0E-02	4.9E+02	NA	8.8E+00	NA	NA	NA	NA	NA
U_{238+2d}	2.7E-01	7.3E+03	NA	1.3E+02	NA	NA	NA	NA	NA
Rn_{222+4d}	1.4E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.4E-13	1.4E-08	3.1E-08	NA	NA	NA	NA	NA	NA
cadmium	1.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	6.2E-12	3.2E-07	7.1E-07	NA	NA	NA	NA	NA	NA
nickel	7.0E-12	3.1E-07	3.4E-08	NA	NA	NA	NA	NA	NA
benzene	2.3E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E-15	1.4E-10	9.3E-09	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	9.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.4E-09	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.2E-14	6.4E-09	4.2E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.3E-14	1.0E-08	6.7E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E-14	1.9E-08	1.3E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E-14	1.4E-08	9.3E-07	NA	NA	NA	NA	NA	NA
chrysene	1.1E-14	6.4E-09	4.2E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.3E-15	4.3E-09	2.9E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	8.9E-15	1.6E-08	1.1E-06	NA	NA	NA	NA	NA	NA
aroclor-1254	1.7E-14	1.3E-09	1.7E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	2.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	3.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.3E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	8.5E-19	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.5E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5c
INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 7, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.5E-04	8.9E+00	NA	1.6E-01	NA	NA	NA	NA	NA
Np_{237+1d}	3.5E-05	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	8.5E-04	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.6E-04	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.4E-01	1.4E+01	NA	2.6E-01	NA	NA	NA	NA	NA
Ra_{228+1d}	2.3E-02	1.7E+01	NA	3.1E-01	NA	NA	NA	NA	NA
Ru_{106}	6.0E-05	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.0E-04	1.7E+01	NA	3.0E-01	NA	NA	NA	NA	NA
Tc_{99}	4.4E-03	1.5E+01	NA	2.8E-01	NA	NA	NA	NA	NA
Th_{228+7d}	3.3E-03	1.8E+01	NA	3.3E-01	NA	NA	NA	NA	NA
Th_{230}	2.9E-01	3.0E+01	NA	5.3E-01	NA	NA	NA	NA	NA
Th_{232}	8.3E-03	1.9E+01	NA	3.4E-01	NA	NA	NA	NA	NA
U_{234}	1.5E-01	1.5E+02	NA	2.6E+00	NA	NA	NA	NA	NA
$U_{235/236}$	1.1E-02	1.1E+01	NA	2.0E-01	NA	NA	NA	NA	NA
U_{238+2d}	1.5E-01	1.6E+02	NA	2.8E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	2.3E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.0E-13	1.1E-08	2.3E-08	NA	NA	NA	NA	NA	NA
cadmium	1.2E-12	2.1E-08	4.5E-08	NA	NA	NA	NA	NA	NA
chromium vi	5.3E-12	1.5E-07	3.3E-07	NA	NA	NA	NA	NA	NA
nickel	6.0E-12	2.1E-07	2.3E-08	NA	NA	NA	NA	NA	NA
benzene	6.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.1E-15	4.9E-10	4.3E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	2.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]hloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	3.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]oethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]roisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ene chloride	6.4E-15	1.2E-10	7.9E-09	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.4E-09	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.8E-09	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.1E-14	5.2E-10	3.4E-08	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E-14	5.5E-10	3.6E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.3E-14	5.4E-10	3.6E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E-14	6.0E-10	4.0E-08	NA	NA	NA	NA	NA	NA
chrysene	1.8E-14	6.4E-10	4.2E-08	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	3.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	7.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	7.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	2.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E-18	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5d
INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 8, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	4.8E-05	9.1E+00	NA	1.6E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.2E-05	9.6E+00	NA	1.7E-01	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.9E-04	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	6.8E-05	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	9.3E-03	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	1.7E-03	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	5.0E-05	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.7E-05	1.7E+01	NA	3.0E-01	NA	NA	NA	NA	NA
Tc_{99}	6.2E-04	1.9E+01	NA	3.4E-01	NA	NA	NA	NA	NA
Th_{228+7d}	9.7E-04	1.8E+01	NA	3.3E-01	NA	NA	NA	NA	NA
Th_{230}	1.0E-02	2.1E+01	NA	3.7E-01	NA	NA	NA	NA	NA
Th_{232}	1.2E-03	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.9E-02	4.7E+01	NA	8.5E-01	NA	NA	NA	NA	NA
$U_{235/236}$	2.7E-03	8.3E+00	NA	1.5E-01	NA	NA	NA	NA	NA
U_{238+2d}	3.7E-02	6.0E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	6.4E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.4E-13	1.7E-08	3.8E-08	NA	NA	NA	NA	NA	NA
cadmium	7.7E-13	1.8E-08	4.1E-08	NA	NA	NA	NA	NA	NA
chromium vi	2.6E-12	1.5E-07	3.4E-07	NA	NA	NA	NA	NA	NA
nickel	3.6E-12	1.8E-07	2.0E-08	NA	NA	NA	NA	NA	NA
benzene	1.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-15	6.4E-09	5.6E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.9E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	N
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	N
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.4E-09	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E-08	4.3E-11	2.9E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.6E-15	5.2E-10	3.4E-08	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.5E-15	6.0E-10	4.0E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.7E-15	6.5E-10	4.3E-08	NA	NA	NA	NA	NA	NA
chrysene	4.7E-15	8.3E-10	5.5E-08	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	4.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	2.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	7.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.6E-18	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.2E-19	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.3E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5e
INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 9, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	8.1E-05	1.3E+01	NA	2.4E-01	NA	NA	NA	NA	NA
Np_{237+1d}	2.7E-05	1.3E+01	NA	2.3E-01	1.6E+01	NA	NA	NA	NA
Pb_{210+2d}	NA	4.4E+02	NA	7.9E+00	NA	NA	NA	NA	NA
Pu_{238}	4.1E-04	3.6E+00	NA	6.4E-02	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.1E-05	3.6E+00	NA	6.4E-02	1.8E+01	NA	NA	NA	NA
Ra_{226+5d}	1.9E-02	4.1E+02	NA	7.4E+00	NA	NA	2.7E+00	NA	4.9E-02
Ra_{228+1d}	3.1E-03	1.7E+01	NA	3.1E-01	NA	NA	3.5E+00	NA	6.4E-02
Ru_{106}	1.7E-04	3.6E+01	NA	6.6E-01	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E-04	1.8E+01	NA	3.2E-01	NA	NA	NA	NA	NA
Tc_{99}	8.3E-04	1.4E+01	NA	2.6E-01	NA	NA	NA	NA	NA
Th_{228+7d}	1.3E-03	9.8E+01	NA	1.8E+00	NA	NA	NA	NA	NA
Th_{230}	2.5E-02	4.2E+02	NA	7.6E+00	5.5E+01	NA	NA	NA	NA
Th_{232}	1.9E-03	3.0E+01	NA	5.4E-01	NA	NA	NA	NA	NA
U_{234}	3.7E-02	3.9E+02	NA	7.0E+00	2.6E+04	NA	NA	NA	NA
$U_{235/236}$	3.7E-03	1.7E+01	NA	3.0E-01	9.1E+02	NA	NA	NA	NA
U_{238+2d}	5.0E-02	8.5E+02	NA	1.5E+01	2.6E+04	NA	NA	NA	NA
Rn_{222+4d}	6.8E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.9E-12	1.1E-07	2.4E-08	NA	6.8E-08	9.9E-09	NA	NA	NA
beryllium	2.5E-13	8.0E-09	1.8E-08	NA	NA	NA	NA	NA	NA
cadmium	1.5E-12	6.3E-08	1.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.9E-12	1.7E-07	3.7E-07	NA	2.3E-07	6.6E-08	NA	NA	NA
nickel	6.8E-12	2.4E-07	2.7E-08	NA	5.4E-07	7.9E-09	NA	NA	NA
benzene	1.1E-18	3.2E-11	3.6E-12	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-15	4.0E-08	3.5E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.2E-16	3.0E-10	2.0E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	2.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.4E-09	NA	NA	NA	4.8E-06	8.8E-05	NA	NA	NA
trichloroethene	7.0E-09	6.5E-11	4.3E-09	NA	3.6E-07	1.7E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.5E-15	1.4E-08	9.3E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.3E-15	1.1E-08	7.0E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.3E-15	2.6E-08	1.7E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.1E-15	6.6E-10	4.4E-08	NA	NA	NA	NA	NA	NA
chrysene	4.5E-15	1.2E-08	7.9E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.4E-15	4.3E-10	2.9E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	6.2E-15	1.5E-10	2.0E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	1.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.5E-18	9.7E-12	6.4E-11	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.6E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5f
INTAKES FOR CARCINOGENS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 10, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	7.5E-05	6.5E+00	NA	1.2E-01	NA	NA	NA	NA	NA
Np_{237+1d}	2.6E-05	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.3E-03	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.5E-04	4.8E+00	NA	8.6E-02	NA	NA	NA	NA	NA
Ra_{226+5d}	1.8E-02	1.7E+01	NA	3.0E-01	3.7E+01	NA	3.7E+00	NA	6.7E-02
Ra_{228+1d}	1.0E-02	1.4E+01	NA	2.6E-01	7.0E+01	NA	3.1E+00	NA	5.7E-02
Ru_{106}	4.6E-05	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.0E-04	1.6E+01	NA	2.9E-01	NA	NA	NA	NA	NA
Tc_{99}	1.8E-03	1.5E+01	NA	2.8E-01	NA	NA	NA	NA	NA
Th_{228+7d}	2.2E-03	1.4E+01	NA	2.5E-01	NA	NA	2.7E+00	NA	5.0E-02
Th_{230}	7.9E-02	2.7E+01	NA	4.9E-01	9.5E+00	NA	1.0E+01	NA	1.9E-01
Th_{232}	4.6E-03	1.0E+01	NA	1.9E-01	8.7E+00	NA	3.1E+00	NA	5.7E-02
U_{234}	1.4E-01	6.6E+01	NA	1.2E+00	2.4E+02	NA	1.4E+01	NA	2.6E-01
$U_{235/236}$	1.1E-02	9.6E+00	NA	1.7E-01	3.7E+01	NA	3.5E+00	NA	6.4E-02
U_{238+2d}	1.4E-01	1.7E+02	NA	3.0E+00	3.1E+02	NA	1.2E+01	NA	2.2E-01
Rn_{222+4d}	4.1E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.1E-12	2.5E-07	5.6E-08	NA	1.1E-07	1.6E-08	2.0E-08	1.3E-08	NA
beryllium	2.3E-13	1.7E-08	3.8E-08	NA	NA	NA	1.2E-08	8.3E-08	NA
cadmium	8.5E-13	1.4E-08	3.1E-08	NA	9.9E-08	1.5E-08	2.0E-08	1.3E-07	NA
chromium vi	4.0E-12	1.9E-07	4.2E-07	NA	NA	NA	6.5E-08	4.4E-07	NA
nickel	4.3E-12	NA	NA	NA	2.8E-07	4.1E-09	6.9E-08	2.3E-08	NA
benzene	9.4E-19	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.8E-15	2.3E-09	2.0E-09	NA	1.2E-06	7.1E-05	1.9E-10	5.2E-10	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.3E-16	7.6E-11	5.0E-09	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.4E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.2E-16	NA	NA	NA	NA	NA	2.5E-11	5.0E-09	NA
n-nitrosodiphenylamine	5.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.6E-10	3.2E-11	2.9E-09	NA	NA	NA	NA	NA	NA
trichloroethene	9.2E-10	2.2E-11	1.4E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.5E-15	7.2E-10	4.8E-08	NA	NA	NA	5.0E-10	1.0E-07	NA
benzo(a)pyrene	6.0E-15	6.6E-10	4.4E-08	NA	NA	NA	4.6E-10	9.3E-08	NA
benzo(b)fluoranthene	6.3E-15	7.1E-10	4.7E-08	NA	NA	NA	8.5E-10	1.7E-07	NA
benzo(k)fluoranthene	5.1E-15	8.3E-10	5.5E-08	NA	NA	NA	1.1E-09	2.1E-07	NA
chrysene	5.6E-15	9.5E-10	6.3E-08	NA	NA	NA	5.3E-10	1.1E-07	NA
dibenzo(a,h)anthracene	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.0E-15	5.4E-10	3.6E-08	NA	NA	NA	3.5E-10	7.2E-08	NA
aroclor-1254	1.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	2.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.0E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.3E-18	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.7E-19	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.3E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5g
INTAKES FOR CARCINOGENS FOR EXPLORING YOUTH
AREA 1, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.3E-04	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E-04	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	6.8E-03	7.7E+00	NA	1.4E-01	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	4.6E-02	3.1E+01	NA	5.6E-01	NA	NA	NA	NA	NA
Ra_{228+1d}	3.9E-02	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.3E-04	2.0E+01	NA	3.6E-01	NA	NA	NA	NA	NA
Tc_{99}	3.9E-03	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	9.5E-03	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.9E-01	4.4E+01	NA	7.8E-01	NA	NA	NA	NA	NA
Th_{232}	2.3E-02	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.4E-01	3.3E+02	NA	6.0E+00	NA	NA	NA	NA	NA
$U_{235/236}$	5.0E-02	2.2E+01	NA	4.0E-01	NA	NA	NA	NA	NA
U_{238+2d}	6.8E-01	4.9E+02	NA	8.8E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	7.6E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.8E-12	1.3E-07	2.8E-08	NA	NA	NA	NA	NA	NA
beryllium	4.1E-13	1.0E-08	2.3E-08	NA	NA	NA	NA	NA	NA
cadmium	1.5E-12	1.2E-08	2.6E-08	NA	NA	NA	NA	NA	NA
chromium vi	7.4E-12	1.9E-07	4.2E-07	NA	NA	NA	NA	NA	NA
nickel	8.3E-12	2.6E-07	2.8E-08	NA	NA	NA	NA	NA	NA
benzene	2.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.3E-15	1.3E-09	1.1E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.3E-15	2.7E-09	1.8E-07	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	6.5E-11	4.3E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.6E-15	1.4E-10	9.3E-09	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.4E-10	1.1E-11	9.5E-10	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E-09	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E-14	1.9E-08	1.3E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.1E-14	1.7E-08	1.1E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.1E-14	2.2E-08	1.4E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.7E-14	1.6E-08	1.1E-06	NA	NA	NA	NA	NA	NA
chrysene	1.8E-14	2.4E-08	1.6E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.8E-15	4.3E-09	2.9E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.3E-14	1.4E-08	9.3E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	5.5E-14	2.2E-09	2.9E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	7.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.0E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5b
INTAKES FOR CARCINOGENS FOR EXPLORING YOUTH
AREA 2, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.9E-04	1.4E+01	NA	2.6E-01	NA	NA	NA	NA	NA
Np_{237+1d}	2.3E-04	8.4E+00	NA	1.5E-01	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	6.2E-03	7.2E+01	NA	1.3E+00	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.9E-04	2.0E+01	NA	3.5E-01	NA	NA	NA	NA	NA
Ra_{224+5d}	7.0E-02	2.0E+01	NA	3.6E-01	NA	NA	NA	NA	NA
Ra_{228+1d}	4.4E-02	5.9E+02	NA	1.1E+01	NA	NA	NA	NA	NA
Ru_{106}	3.1E-04	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	9.5E-04	1.2E+01	NA	2.1E-01	NA	NA	NA	NA	NA
Tc_{99}	4.6E-03	6.0E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{228+7d}	9.7E-03	3.1E+02	NA	5.6E+00	NA	NA	NA	NA	NA
Th_{230}	2.7E-01	1.2E+03	NA	2.2E+01	NA	NA	NA	NA	NA
Th_{232}	1.9E-02	4.2E+02	NA	7.6E+00	NA	NA	NA	NA	NA
U_{234}	7.0E-01	8.7E+03	NA	1.6E+02	NA	NA	NA	NA	NA
$U_{235/236}$	5.8E-02	7.5E+02	NA	1.4E+01	NA	NA	NA	NA	NA
U_{238+2d}	7.5E-01	9.3E+03	NA	1.7E+02	NA	NA	NA	NA	NA
Rn_{222+4d}	1.2E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.3E-12	1.3E-07	2.9E-08	NA	NA	NA	NA	NA	NA
beryllium	6.0E-13	1.6E-08	3.6E-08	NA	NA	NA	NA	NA	NA
cadmium	1.9E-12	6.7E-08	1.5E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.0E-11	3.2E-07	7.2E-07	NA	NA	NA	NA	NA	NA
nickel	1.2E-11	2.8E-07	3.1E-08	NA	NA	NA	NA	NA	NA
benzene	3.8E-18	5.4E-11	6.0E-12	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.2E-15	2.8E-09	2.5E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.5E-15	2.3E-09	1.5E-07	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.3E-11	2.9E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.0E-15	2.2E-10	1.4E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	7.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E-09	1.3E-10	1.1E-08	NA	NA	NA	NA	NA	NA
trichloroethene	2.1E-09	3.7E-10	2.4E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.4E-14	1.7E-08	1.1E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.6E-14	1.2E-08	7.9E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.0E-14	1.6E-08	1.1E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.6E-14	1.3E-08	8.6E-07	NA	NA	NA	NA	NA	NA
chrysene	3.4E-14	1.7E-08	1.1E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E-14	4.2E-09	2.8E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.5E-14	1.1E-08	7.2E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	7.4E-14	4.3E-08	5.7E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	4.5E-16	9.7E-09	1.3E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.4E-19	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5i
INTAKES FOR CARCINOGENS FOR EXPLORING YOUTH
AREA 3, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.7E-04	1.2E+01	NA	2.1E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E-04	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.3E-03	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.1E-04	1.8E+01	NA	3.2E-01	NA	NA	NA	NA	NA
Ra_{226+5d}	4.1E-01	5.7E+01	NA	1.0E+00	NA	NA	NA	NA	NA
Ra_{228+1d}	3.9E-02	9.8E+01	NA	1.8E+00	NA	NA	NA	NA	NA
Ru_{106}	1.6E-04	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.2E-03	4.0E+01	NA	7.3E-01	NA	NA	NA	NA	NA
Tc_{99}	5.8E-03	6.0E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{228+7d}	7.0E-03	6.1E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{230}	4.1E-01	2.7E+02	NA	4.9E+00	NA	NA	NA	NA	NA
Th_{232}	1.7E-02	6.0E+01	NA	1.1E+00	NA	NA	NA	NA	NA
U_{234}	3.7E-01	2.7E+03	NA	4.9E+01	NA	NA	NA	NA	NA
$U_{235/236}$	3.1E-02	1.2E+02	NA	2.2E+00	NA	NA	NA	NA	NA
U_{238+2d}	4.1E-01	2.9E+03	NA	5.2E+01	NA	NA	NA	NA	NA
Rn_{222+4d}	9.7E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.3E-12	2.0E-07	4.4E-08	NA	NA	NA	NA	NA	NA
beryllium	5.7E-13	1.1E-08	2.4E-08	NA	NA	NA	NA	NA	NA
cadmium	2.1E-12	4.4E-08	9.8E-08	NA	NA	NA	NA	NA	NA
chromium vi	1.0E-11	5.4E-07	1.2E-06	NA	NA	NA	NA	NA	NA
nickel	1.2E-11	3.1E-07	3.5E-08	NA	NA	NA	NA	NA	NA
benzene	2.1E-17	2.2E-11	2.4E-12	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-14	4.0E-08	3.5E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	9.4E-15	7.0E-10	4.7E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.0E-16	3.0E-09	2.0E-07	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.2E-10	2.8E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	2.2E-11	1.4E-09	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.0E-14	5.4E-10	3.6E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.5E-15	7.3E-09	4.9E-07	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.8E-09	5.2E-09	4.6E-07	NA	NA	NA	NA	NA	NA
trichloroethene	3.6E-09	9.7E-10	6.4E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	9.2E-14	9.8E-08	6.5E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E-13	1.2E-07	7.9E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.1E-14	4.9E-08	3.2E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.0E-13	4.1E-08	2.7E-06	NA	NA	NA	NA	NA	NA
chrysene	5.8E-14	3.9E-08	2.6E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.8E-14	3.7E-08	2.4E-06	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.5E-14	8.6E-08	5.7E-06	NA	NA	NA	NA	NA	NA
aroclor-1254	6.8E-14	1.7E-08	2.3E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	2.5E-15	3.0E-08	4.0E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	9.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	3.5E-12	2.3E-11	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.7E-18	1.2E-11	7.9E-11	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.3E-18	1.4E-11	9.3E-11	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5j
INTAKES FOR CARCINOGENS FOR EXPLORING YOUTH
AREA 4, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	2.7E-04	7.4E+00	NA	1.3E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E-04	NA	NA	NA	NA	NA	3.9E-01	NA	7.1E-03
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.6E-03	2.6E+01	NA	4.7E-01	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.8E-04	7.1E+00	NA	1.3E-01	NA	NA	NA	NA	NA
Ra_{226+5d}	1.3E-01	4.0E+01	NA	7.3E-01	NA	NA	3.9E+00	NA	7.1E-02
Ra_{228+1d}	1.2E-02	3.6E+02	NA	6.5E+00	NA	NA	4.3E+00	NA	7.8E-02
Ru_{106}	6.6E-04	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.7E-04	2.6E+01	NA	4.7E-01	NA	NA	3.9E+00	NA	7.1E-02
Tc_{99}	3.3E-03	1.0E+02	NA	1.8E+00	1.8E+03	NA	NA	NA	NA
Th_{228+7d}	4.8E-03	3.7E+02	NA	6.7E+00	NA	NA	2.8E+00	NA	5.2E-02
Th_{230}	1.0E-01	3.8E+02	NA	6.8E+00	NA	NA	4.1E+00	NA	7.5E-02
Th_{232}	5.6E-03	3.2E+02	NA	5.7E+00	NA	NA	2.2E+00	NA	4.1E-02
U_{234}	2.5E-01	1.7E+03	NA	3.1E+01	1.6E+03	NA	1.4E+01	NA	2.6E-01
$U_{235/236}$	2.3E-02	1.3E+02	NA	2.3E+00	1.4E+02	NA	9.7E-01	NA	1.8E-02
U_{238+2d}	2.7E-01	5.4E+03	NA	9.8E+01	7.9E+03	NA	1.8E+01	NA	3.2E-01
Rn_{222+4d}	1.0E+05	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.5E-12	8.2E-08	1.8E-08	NA	NA	NA	3.7E-08	2.5E-08	NA
beryllium	5.5E-13	8.9E-09	2.0E-08	NA	3.0E-08	4.4E-09	2.9E-09	2.0E-08	NA
cadmium	2.8E-12	6.3E-08	1.4E-07	NA	1.3E-07	1.8E-08	NA	NA	NA
chromium vi	1.2E-11	2.8E-07	6.1E-07	NA	3.5E-07	1.0E-07	4.7E-08	3.1E-07	NA
nickel	1.4E-11	2.7E-07	3.0E-08	NA	2.6E-07	3.8E-09	7.7E-08	2.6E-08	NA
benzene	7.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.1E-15	1.0E-09	9.2E-10	NA	NA	NA	5.0E-10	1.3E-09	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.5E-15	NA	NA	NA	NA	NA	4.3E-10	8.6E-08	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.2E-17	4.3E-11	2.9E-09	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E-15	1.5E-10	1.0E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.3E-14	1.4E-08	9.3E-07	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.8E-09	7.0E-11	6.2E-09	NA	NA	NA	NA	NA	NA
trichloroethene	5.7E-09	3.2E-11	2.1E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.3E-14	5.7E-10	3.8E-08	NA	NA	NA	1.8E-09	3.6E-07	NA
benzo(a)pyrene	2.6E-14	7.2E-10	4.8E-08	NA	NA	NA	2.0E-09	3.9E-07	NA
benzo(b)fluoranthene	2.8E-14	8.4E-10	5.6E-08	NA	NA	NA	2.6E-09	5.2E-07	NA
benzo(k)fluoranthene	2.6E-14	6.0E-10	4.0E-08	NA	NA	NA	9.6E-10	1.9E-07	NA
chrysene	2.5E-14	1.0E-09	6.8E-08	NA	NA	NA	1.8E-09	3.6E-07	NA
dibenzo(a,h)anthracene	7.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.9E-14	NA	NA	NA	NA	NA	1.1E-09	2.2E-07	NA
aroclor-1254	3.8E-14	4.9E-09	6.4E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	8.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	7.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.6E-18	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E-18	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-5k
INTAKES FOR CARCINOGENS FOR EXPLORING YOUTH
PADDYS RUN OFF-PROPERTY, CURRENT LAND USE

Transfer Media:	Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA
Ra_{226+5d}	4.4E+01	NA	4.3E+00	NA	7.8E-02
Ra_{228+1d}	8.1E+01	NA	2.3E+00	NA	4.3E-02
Ru_{106}	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA
Th_{228+7d}	6.9E+01	NA	1.6E+00	NA	2.8E-02
Th_{230}	4.3E+01	NA	3.1E+00	NA	5.7E-02
Th_{232}	NA	NA	1.6E+00	NA	2.8E-02
U_{234}	1.5E+02	NA	3.1E+00	NA	5.7E-02
$U_{235/236}$	NA	NA	NA	NA	NA
U_{238+2d}	8.5E+01	NA	2.7E+00	NA	5.0E-02
Rn_{222+4d}	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.8E-08	7.0E-09	1.7E-08	1.1E-08	NA
beryllium	NA	NA	6.4E-09	4.3E-08	NA
cadmium	NA	NA	NA	NA	NA
chromium vi	NA	NA	2.0E-08	1.3E-07	NA
nickel	NA	NA	2.2E-08	7.3E-09	NA
benzene	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.4E-07	2.7E-05	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA
methylene chloride	NA	NA	2.1E-11	4.3E-09	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA
trichloroethene	4.0E-08	1.9E-07	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-6a
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 5, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.0E-12	7.6E-08	1.7E-07	NA	NA	NA	NA	NA	NA
aluminum	2.2E-08	5.7E-04	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	4.0E-11	2.0E-07	4.3E-07	NA	NA	NA	NA	NA	NA
arsenic	1.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.7E-10	5.2E-06	1.2E-05	NA	NA	NA	NA	NA	NA
beryllium	2.1E-12	4.0E-08	8.8E-08	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.1E-11	4.8E-07	1.1E-06	NA	NA	NA	NA	NA	NA
chromium vi	4.2E-11	1.1E-06	2.4E-06	NA	NA	NA	NA	NA	NA
cobalt	2.3E-11	9.9E-07	2.2E-06	NA	NA	NA	NA	NA	NA
copper	6.9E-11	3.3E-06	7.4E-07	NA	NA	NA	NA	NA	NA
lead	3.2E-10	6.3E-06	1.4E-05	NA	NA	NA	NA	NA	NA
magnesium	6.0E-08	NA	NA	NA	NA	NA	NA	NA	NA
manganese	1.9E-09	9.3E-05	2.1E-04	NA	NA	NA	NA	NA	NA
mercury	6.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.9E-11	2.9E-07	6.4E-07	NA	NA	NA	NA	NA	NA
nickel	5.1E-11	1.6E-06	1.8E-07	NA	NA	NA	NA	NA	NA
selenium	2.3E-12	5.1E-08	1.1E-07	NA	NA	NA	NA	NA	NA
silver	1.9E-11	4.6E-07	NA	NA	NA	NA	NA	NA	NA
thallium	1.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.7E-09	3.3E-05	7.2E-05	NA	NA	NA	NA	NA	NA
vanadium	5.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.6E-10	1.4E-04	3.0E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.6E-14	3.6E-08	3.2E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.4E-07	1.6E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E-14	1.4E-08	9.2E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	4.3E-07	2.8E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	1.4E-07	9.2E-06	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.1E-08	1.1E-08	9.5E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6b
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 6, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.2E-12	5.5E-08	1.2E-07	NA	NA	NA	NA	NA	NA
aluminum	1.6E-08	1.5E-03	3.2E-03	NA	NA	NA	NA	NA	NA
antimony	2.9E-11	1.4E-06	3.0E-06	NA	NA	NA	NA	NA	NA
arsenic	1.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.2E-10	1.1E-05	2.4E-05	NA	NA	NA	NA	NA	NA
beryllium	2.0E-12	8.2E-08	1.8E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.9E-12	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.6E-11	1.9E-06	4.1E-06	NA	NA	NA	NA	NA	NA
cobalt	1.8E-11	9.9E-07	2.2E-06	NA	NA	NA	NA	NA	NA
copper	7.3E-11	1.5E-06	3.3E-07	NA	NA	NA	NA	NA	NA
lead	1.4E-09	3.6E-05	7.9E-05	NA	NA	NA	NA	NA	NA
magnesium	6.4E-08	1.3E-03	3.0E-03	NA	NA	NA	NA	NA	NA
manganese	1.9E-09	1.3E-04	2.8E-04	NA	NA	NA	NA	NA	NA
mercury	7.4E-13	7.6E-09	8.3E-08	NA	NA	NA	NA	NA	NA
molybdenum	1.4E-11	5.4E-07	1.2E-06	NA	NA	NA	NA	NA	NA
nickel	4.1E-11	1.8E-06	2.0E-07	NA	NA	NA	NA	NA	NA
selenium	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
silver	1.2E-11	1.1E-07	NA	NA	NA	NA	NA	NA	NA
thallium	5.2E-13	3.0E-08	6.5E-08	NA	NA	NA	NA	NA	NA
uranium-total	3.5E-09	1.1E-04	2.4E-04	NA	NA	NA	NA	NA	NA
vanadium	4.3E-11	3.0E-06	6.6E-07	NA	NA	NA	NA	NA	NA
zinc	2.4E-10	2.7E-05	6.0E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.3E-08	8.8E-07	NA	NA	NA	NA	NA	NA
methylene chloride	1.4E-14	8.2E-10	5.4E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	1.8E-08	1.2E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	3.7E-09	2.5E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6c
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 7, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	8.4E-13	2.6E-08	5.8E-08	NA	NA	NA	NA	NA	NA
aluminum	1.3E-08	6.0E-04	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	2.1E-11	2.3E-07	5.1E-07	NA	NA	NA	NA	NA	NA
arsenic	1.4E-11	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.0E-10	8.6E-06	1.9E-05	NA	NA	NA	NA	NA	NA
beryllium	1.8E-12	6.2E-08	1.4E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	6.7E-12	1.2E-07	2.6E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.1E-11	8.8E-07	1.9E-06	NA	NA	NA	NA	NA	NA
cobalt	1.4E-11	8.8E-07	1.9E-06	NA	NA	NA	NA	NA	NA
copper	6.4E-11	9.8E-07	2.2E-07	NA	NA	NA	NA	NA	NA
lead	6.0E-10	1.6E-06	3.5E-06	NA	NA	NA	NA	NA	NA
magnesium	4.5E-08	3.7E-03	8.2E-03	NA	NA	NA	NA	NA	NA
manganese	1.4E-09	1.2E-04	2.6E-04	NA	NA	NA	NA	NA	NA
mercury	5.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.3E-11	7.8E-07	1.7E-06	NA	NA	NA	NA	NA	NA
nickel	3.5E-11	1.2E-06	1.3E-07	NA	NA	NA	NA	NA	NA
selenium	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
silver	1.1E-11	3.0E-08	NA	NA	NA	NA	NA	NA	NA
thallium	5.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.1E-09	3.3E-06	7.4E-06	NA	NA	NA	NA	NA	NA
vanadium	3.5E-11	1.9E-06	4.2E-07	NA	NA	NA	NA	NA	NA
zinc	3.5E-10	3.6E-06	7.9E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.0E-14	2.8E-09	2.5E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloro[illegible]	1.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]methane	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ene	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ane	NA	NA	NA	NA	NA	NA	NA	NA	N[illegible]
[illegible]opyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	N[illegible]
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ide	NA	6.3E-09	4.2E-07	NA	NA	NA	NA	NA	NA
[illegible]	3.7E-14	6.9E-10	4.6E-08	NA	NA	NA	NA	NA	NA
[illegible]	NA	5.9E-09	3.9E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.6E-09	1.7E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.2E-09	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	4.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6d
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 8, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.2E-13	3.3E-08	7.4E-08	NA	NA	NA	NA	NA	NA
aluminum	7.8E-09	6.2E-04	1.4E-03	NA	NA	NA	NA	NA	NA
antimony	1.6E-11	2.0E-07	4.5E-07	NA	NA	NA	NA	NA	NA
arsenic	7.7E-12	NA	NA	NA	NA	NA	NA	NA	NA
barium	8.7E-11	6.4E-06	1.4E-05	NA	NA	NA	NA	NA	NA
beryllium	8.1E-13	1.0E-07	2.2E-07	NA	NA	NA	NA	NA	NA
boron	NA	9.0E-07	2.0E-06	NA	NA	NA	NA	NA	NA
cadmium	4.5E-12	1.1E-07	2.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-11	8.9E-07	2.0E-06	NA	NA	NA	NA	NA	NA
cobalt	8.8E-12	7.6E-07	1.7E-06	NA	NA	NA	NA	NA	NA
copper	2.1E-11	1.0E-06	2.3E-07	NA	NA	NA	NA	NA	NA
lead	8.8E-11	1.4E-06	3.2E-06	NA	NA	NA	NA	NA	NA
magnesium	2.5E-08	1.1E-03	2.4E-03	NA	NA	NA	NA	NA	NA
manganese	7.4E-10	6.0E-05	1.3E-04	NA	NA	NA	NA	NA	NA
mercury	1.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	6.4E-12	7.4E-07	1.6E-06	NA	NA	NA	NA	NA	NA
nickel	2.1E-11	1.1E-06	1.2E-07	NA	NA	NA	NA	NA	NA
selenium	7.3E-13	4.8E-08	1.1E-07	NA	NA	NA	NA	NA	NA
silver	7.3E-12	2.5E-07	NA	NA	NA	NA	NA	NA	NA
thallium	3.6E-13	4.2E-08	9.3E-08	NA	NA	NA	NA	NA	NA
uranium-total	5.7E-10	9.3E-07	2.1E-06	NA	NA	NA	NA	NA	NA
vanadium	2.0E-11	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.6E-10	4.3E-06	9.5E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.1E-15	3.7E-08	3.3E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]thane	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	4.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ene	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ropropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ene	NA	1.0E-08	6.7E-07	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	8.2E-09	5.4E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	6.0E-09	4.0E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.3E-08	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6e
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 9, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.8E-13	NA	NA	NA	3.2E-07	1.4E-07	NA	NA	NA
aluminum	1.5E-08	6.3E-04	1.4E-03	NA	1.7E-03	2.4E-04	NA	NA	NA
antimony	4.5E-11	1.9E-06	4.2E-06	NA	NA	NA	NA	NA	NA
arsenic	2.9E-11	6.3E-07	1.4E-07	NA	3.9E-07	5.8E-08	NA	NA	NA
barium	1.6E-10	4.4E-06	9.8E-06	NA	2.6E-05	3.8E-06	NA	NA	NA
beryllium	1.4E-12	4.7E-08	1.0E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	9.0E-12	3.7E-07	8.1E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.9E-11	9.7E-07	2.1E-06	NA	1.3E-06	3.9E-07	NA	NA	NA
cobalt	1.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.7E-11	1.2E-06	2.6E-07	NA	2.3E-06	3.4E-07	NA	NA	NA
lead	1.2E-10	1.2E-06	2.7E-06	NA	1.1E-06	6.2E-10	3.8E-07	2.6E-06	NA
magnesium	3.6E-08	NA	NA	NA	7.6E-03	1.1E-03	NA	NA	NA
manganese	1.9E-09	NA	NA	NA	9.6E-05	1.4E-05	NA	NA	NA
mercury	2.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	8.6E-12	3.3E-07	7.2E-07	NA	NA	NA	NA	NA	NA
nickel	4.0E-11	1.4E-06	1.6E-07	NA	3.1E-06	4.6E-08	NA	NA	NA
selenium	1.3E-12	5.3E-08	1.2E-07	NA	NA	NA	NA	NA	NA
silver	1.5E-11	2.8E-07	NA	NA	NA	NA	NA	NA	NA
thallium	6.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	7.6E-10	5.1E-06	1.1E-05	NA	1.6E-05	2.3E-06	6.3E-07	4.2E-06	NA
vanadium	3.7E-11	1.5E-06	3.4E-07	NA	3.7E-06	5.4E-07	NA	NA	NA
zinc	1.5E-10	5.0E-06	1.1E-05	NA	4.5E-06	3.9E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.7E-15	2.3E-07	2.1E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	7.8E-06	1.0E-05	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.6E-07	1.0E-05	NA	NA	NA	NA	NA	NA
methylene chloride	5.4E-15	1.8E-09	1.2E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	1.7E-07	1.1E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	4.3E-07	2.8E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.0E-08	NA	NA	NA	2.8E-05	5.1E-04	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	5.2E-05	7.6E-06	1.9E-06	1.3E-05	NA
nitrate	NA	NA	NA	NA	3.1E-04	4.5E-05	5.4E-08	NA	NA
fluoride	NA	NA	NA	NA	6.5E-05	9.5E-06	1.2E-07	7.9E-07	NA
chloride	NA	NA	NA	NA	NA	NA	8.3E-07	NA	NA
sulfate	NA	NA	NA	NA	1.2E-02	1.7E-03	8.7E-06	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6f
INTAKES FOR TOXICANTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 10, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	9.2E-13	5.7E-08	1.3E-07	NA	8.9E-07	3.8E-07	1.0E-08	6.8E-08	NA
aluminum	1.2E-08	5.0E-04	1.1E-03	NA	2.1E-05	3.1E-06	1.5E-04	1.0E-03	NA
antimony	1.9E-11	2.6E-07	5.7E-07	NA	NA	NA	NA	NA	NA
arsenic	1.2E-11	1.5E-06	3.2E-07	NA	6.3E-07	9.2E-08	1.1E-07	7.7E-08	NA
barium	1.5E-10	4.8E-06	1.1E-05	NA	NA	NA	8.9E-07	6.0E-06	NA
beryllium	1.3E-12	1.0E-07	2.2E-07	NA	NA	NA	7.2E-08	4.9E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E-12	8.2E-08	1.8E-07	NA	5.8E-07	8.5E-08	1.1E-07	7.7E-07	NA
chromium vi	2.3E-11	1.1E-06	2.5E-06	NA	NA	NA	3.8E-07	2.6E-06	NA
cobalt	1.2E-11	NA	NA	NA	NA	NA	1.2E-07	8.4E-07	NA
copper	6.0E-11	9.1E-07	2.0E-07	NA	NA	NA	2.5E-07	1.7E-07	NA
lead	1.5E-09	1.4E-04	3.0E-04	NA	1.8E-05	1.1E-08	3.1E-07	2.1E-06	NA
magnesium	4.0E-08	1.7E-03	3.7E-03	NA	3.5E-03	5.1E-04	8.7E-04	5.8E-03	NA
manganese	1.2E-09	5.1E-05	1.1E-04	NA	4.8E-06	7.0E-07	1.7E-05	1.1E-04	NA
mercury	4.4E-13	3.6E-08	4.0E-07	NA	NA	NA	1.4E-09	4.9E-08	NA
molybdenum	1.0E-11	2.3E-07	5.0E-07	NA	NA	NA	NA	NA	NA
nickel	2.5E-11	NA	NA	NA	1.6E-06	2.4E-08	4.0E-07	1.4E-07	NA
selenium	8.7E-13	1.8E-08	4.0E-08	NA	1.2E-07	1.7E-08	NA	NA	NA
silver	9.7E-12	8.2E-08	NA	NA	4.6E-07	4.1E-08	NA	NA	NA
thallium	3.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.2E-09	3.7E-06	8.2E-06	NA	4.0E-06	5.9E-07	4.7E-07	3.2E-06	NA
vanadium	3.0E-11	NA	NA	NA	NA	NA	4.5E-07	3.0E-07	NA
zinc	1.4E-10	3.9E-06	8.6E-06	NA	1.7E-06	1.5E-07	1.7E-06	1.1E-05	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.1E-14	1.3E-08	1.2E-08	NA	6.7E-06	4.1E-04	1.1E-09	3.0E-09	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.2E-08	7.9E-07	NA	NA	NA	7.2E-09	1.5E-06	NA
methylene chloride	5.4E-15	NA	NA	NA	NA	NA	1.4E-10	2.9E-08	NA
pyrene	NA	9.4E-09	6.3E-07	NA	NA	NA	5.4E-09	1.1E-06	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	6.9E-09	4.6E-07	NA	NA	NA	3.9E-09	7.9E-07	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E-09	1.9E-10	1.7E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	4.1E-11	8.3E-10	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	1.7E-05	2.5E-06	1.0E-06	7.0E-06	NA
nitrate	NA	NA	NA	NA	1.9E-04	2.8E-05	5.7E-08	NA	NA
nitrite	NA	NA	NA	NA	1.7E-04	2.5E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	2.7E-05	3.9E-06	1.6E-07	1.1E-06	NA
chloride	NA	NA	NA	NA	NA	NA	4.8E-06	NA	NA
sulfate	NA	NA	NA	NA	1.0E-02	1.5E-03	1.4E-05	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6g
INTAKES FOR TOXICANTS FOR EXPLORING YOUTH
AREA 1, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.4E-12	8.2E-09	1.8E-08	NA	NA	NA	NA	NA	NA
aluminum	2.1E-08	8.6E-04	1.9E-03	NA	NA	NA	NA	NA	NA
antimony	3.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	2.2E-11	7.3E-07	1.6E-07	NA	NA	NA	NA	NA	NA
barium	3.7E-10	8.3E-06	1.8E-05	NA	NA	NA	NA	NA	NA
beryllium	2.4E-12	6.1E-08	1.3E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.5E-12	6.9E-08	1.5E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.3E-11	1.1E-06	2.4E-06	NA	NA	NA	NA	NA	NA
cobalt	2.2E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	9.2E-11	5.7E-06	1.3E-06	NA	NA	NA	NA	NA	NA
lead	2.0E-09	3.4E-05	7.6E-05	NA	NA	NA	NA	NA	NA
magnesium	6.6E-08	1.7E-03	3.9E-03	NA	NA	NA	NA	NA	NA
manganese	2.1E-09	7.2E-05	1.6E-04	NA	NA	NA	NA	NA	NA
mercury	1.2E-12	1.1E-08	1.2E-07	NA	NA	NA	NA	NA	NA
molybdenum	2.0E-11	4.3E-07	9.6E-07	NA	NA	NA	NA	NA	NA
nickel	4.8E-11	1.5E-06	1.7E-07	NA	NA	NA	NA	NA	NA
selenium	2.3E-12	2.6E-08	5.8E-08	NA	NA	NA	NA	NA	NA
silver	1.9E-11	3.1E-07	NA	NA	NA	NA	NA	NA	NA
thallium	6.4E-13	2.3E-08	5.1E-08	NA	NA	NA	NA	NA	NA
uranium-total	1.0E-08	7.0E-06	1.5E-05	NA	NA	NA	NA	NA	NA
vanadium	5.4E-11	1.7E-06	3.7E-07	NA	NA	NA	NA	NA	NA
zinc	2.7E-10	8.2E-06	1.8E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.5E-14	7.6E-09	6.7E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	1.0E-09	6.7E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	3.8E-10	2.5E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.8E-07	1.9E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-14	8.2E-10	5.4E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	2.1E-07	1.4E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	1.8E-07	1.2E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.3E-09	6.3E-11	5.6E-09	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	6.3E-09	4.2E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	4.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6h
INTAKES FOR TOXICANTS FOR EXPLORING YOUTH
AREA 2, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.6E-12	4.3E-08	9.6E-08	NA	NA	NA	NA	NA	NA
aluminum	2.9E-08	7.5E-04	1.7E-03	NA	NA	NA	NA	NA	NA
antimony	6.0E-11	1.3E-06	3.0E-06	NA	NA	NA	NA	NA	NA
arsenic	3.1E-11	7.7E-07	1.7E-07	NA	NA	NA	NA	NA	NA
barium	6.0E-10	2.1E-05	4.7E-05	NA	NA	NA	NA	NA	NA
beryllium	3.5E-12	9.4E-08	2.1E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.1E-11	3.9E-07	8.6E-07	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-11	1.9E-06	4.2E-06	NA	NA	NA	NA	NA	NA
cobalt	3.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	9.6E-11	2.4E-06	5.4E-07	NA	NA	NA	NA	NA	NA
lead	1.4E-09	2.5E-06	5.4E-06	NA	NA	NA	NA	NA	NA
magnesium	8.2E-08	NA	NA	NA	NA	NA	NA	NA	NA
manganese	3.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
mercury	2.1E-12	6.9E-08	7.7E-07	NA	NA	NA	NA	NA	NA
molybdenum	2.7E-11	6.3E-07	1.4E-06	NA	NA	NA	NA	NA	NA
nickel	6.9E-11	1.7E-06	1.8E-07	NA	NA	NA	NA	NA	NA
selenium	4.1E-12	7.2E-08	1.6E-07	NA	NA	NA	NA	NA	NA
silver	2.6E-11	2.9E-07	NA	NA	NA	NA	NA	NA	NA
thallium	9.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	9.6E-09	6.5E-05	1.4E-04	NA	NA	NA	NA	NA	NA
vanadium	7.3E-11	1.7E-06	3.8E-07	NA	NA	NA	NA	NA	NA
zinc	3.8E-10	9.6E-06	2.1E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.6E-14	1.6E-08	1.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	2.5E-10	1.7E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.5E-10	1.7E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.3E-07	1.5E-05	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E-14	1.3E-09	8.3E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	1.9E-07	1.3E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.3E-07	1.5E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.9E-09	7.6E-10	6.7E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	6.3E-11	4.2E-09	NA	NA	NA	NA	NA	NA
4,4-ddt	6.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6i
INTAKES FOR TOXICANTS FOR EXPLORING YOUTH
AREA 3, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.4E-12	4.0E-08	8.8E-08	NA	NA	NA	NA	NA	NA
aluminum	2.5E-08	6.1E-04	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	4.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	2.5E-11	1.2E-06	2.5E-07	NA	NA	NA	NA	NA	NA
barium	4.2E-10	2.3E-05	5.0E-05	NA	NA	NA	NA	NA	NA
beryllium	3.3E-12	6.4E-08	1.4E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.2E-11	2.6E-07	5.7E-07	NA	NA	NA	NA	NA	NA
chromium vi	5.8E-11	3.2E-06	7.0E-06	NA	NA	NA	NA	NA	NA
cobalt	2.7E-11	6.8E-07	1.5E-06	NA	NA	NA	NA	NA	NA
copper	1.2E-10	5.5E-06	1.2E-06	NA	NA	NA	NA	NA	NA
lead	7.6E-10	1.1E-05	2.5E-05	NA	NA	NA	NA	NA	NA
magnesium	7.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
manganese	2.6E-09	5.8E-05	1.3E-04	NA	NA	NA	NA	NA	NA
mercury	1.3E-12	3.0E-08	3.3E-07	NA	NA	NA	NA	NA	NA
molybdenum	2.5E-11	2.9E-07	6.4E-07	NA	NA	NA	NA	NA	NA
nickel	6.7E-11	1.8E-06	2.0E-07	NA	NA	NA	NA	NA	NA
selenium	2.5E-12	1.2E-07	2.6E-07	NA	NA	NA	NA	NA	NA
silver	2.1E-11	4.7E-07	NA	NA	NA	NA	NA	NA	NA
thallium	9.8E-13	2.5E-08	5.4E-08	NA	NA	NA	NA	NA	NA
uranium-total	6.2E-09	3.9E-05	8.6E-05	NA	NA	NA	NA	NA	NA
vanadium	6.8E-11	1.6E-06	3.5E-07	NA	NA	NA	NA	NA	NA
zinc	6.4E-10	2.4E-05	5.3E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.5E-14	2.3E-07	2.1E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E-16	1.8E-08	1.2E-06	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	1.4E-09	9.2E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.5E-09	1.6E-07	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	3.1E-07	2.1E-05	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E-13	3.1E-09	2.1E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.0E-07	1.3E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E-08	3.0E-08	2.7E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	7.6E-09	5.0E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6j
INTAKES FOR TOXICANTS FOR EXPLORING YOUTH
AREA 4, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.5E-12	9.4E-08	2.1E-07	NA	NA	NA	NA	NA	NA
aluminum	3.5E-08	7.6E-04	1.7E-03	NA	2.7E-05	3.9E-06	2.3E-04	1.5E-03	NA
antimony	9.5E-11	2.6E-06	5.7E-06	NA	NA	NA	NA	NA	NA
arsenic	3.2E-11	4.8E-07	1.1E-07	NA	NA	NA	2.2E-07	1.4E-07	NA
barium	5.1E-10	6.1E-06	1.3E-05	NA	7.3E-06	1.1E-06	2.4E-06	1.6E-05	NA
beryllium	3.2E-12	5.2E-08	1.1E-07	NA	1.7E-07	2.5E-08	1.7E-08	1.2E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.6E-11	3.7E-07	8.1E-07	NA	7.3E-07	1.1E-07	NA	NA	NA
chromium vi	7.1E-11	1.6E-06	3.6E-06	NA	2.0E-06	5.9E-07	2.7E-07	1.8E-06	NA
cobalt	3.5E-11	1.1E-06	2.3E-06	NA	1.6E-06	9.2E-08	2.3E-07	1.5E-06	NA
copper	1.1E-10	1.4E-06	3.2E-07	NA	1.8E-06	2.7E-07	4.0E-07	2.7E-07	NA
lead	4.1E-10	3.4E-06	7.5E-06	NA	NA	NA	4.8E-07	3.2E-06	NA
magnesium	7.7E-08	NA	NA	NA	2.7E-03	4.0E-04	5.4E-04	3.6E-03	NA
manganese	2.9E-09	NA	NA	NA	7.5E-06	1.1E-06	3.4E-05	2.3E-04	NA
mercury	1.5E-12	1.3E-08	1.4E-07	NA	7.0E-08	1.0E-08	NA	NA	NA
molybdenum	2.5E-11	2.6E-07	5.8E-07	NA	2.7E-06	3.9E-07	1.4E-07	9.2E-07	NA
nickel	8.1E-11	1.6E-06	1.7E-07	NA	1.5E-06	2.2E-08	4.5E-07	1.5E-07	NA
selenium	4.5E-12	3.3E-08	7.2E-08	NA	NA	NA	NA	NA	NA
silver	3.1E-11	2.9E-07	NA	NA	NA	NA	1.4E-07	NA	NA
thallium	1.2E-12	3.1E-08	7.0E-08	NA	NA	NA	1.6E-08	1.1E-07	NA
uranium-total	4.5E-09	7.3E-05	1.6E-04	NA	1.1E-04	1.6E-05	6.4E-07	4.3E-06	NA
vanadium	8.5E-11	1.8E-06	3.9E-07	NA	2.2E-06	3.2E-07	6.2E-07	4.1E-07	NA
zinc	4.7E-10	6.5E-06	1.4E-05	NA	3.8E-06	3.3E-07	1.5E-06	1.0E-05	NA
acetone	NA	NA	NA	NA	NA	NA	2.3E-09	4.6E-08	NA
bis(2-ethylhexyl)phthalate	3.0E-14	6.0E-09	5.3E-09	NA	NA	NA	2.9E-09	7.8E-09	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E-16	2.5E-10	1.7E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	6.2E-11	1.3E-08	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	8.8E-09	5.8E-07	NA	NA	NA	2.9E-08	5.8E-06	NA
methylene chloride	2.1E-14	8.8E-10	5.8E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	6.3E-09	4.2E-07	NA	NA	NA	2.1E-08	4.1E-06	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	6.3E-09	4.2E-07	NA	NA	NA	2.1E-08	4.2E-06	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E-08	4.1E-10	3.6E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	3.1E-10	2.1E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	7.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	2.7E-04	3.9E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	5.1E-05	7.5E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.5E-02	2.2E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-6k
INTAKES FOR TOXICANTS FOR EXPLORING YOUTH
PADDYS RUN OFF-PROPERTY, CURRENT LAND USE

Transfer Media:	Surface Water		Sediments		
Exposure Pathways:	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	NA	NA	NA	NA	NA
aluminum	NA	NA	4.7E-05	3.1E-04	NA
antimony	1.7E-06	2.5E-07	NA	NA	NA
arsenic	2.8E-07	4.1E-08	9.9E-08	6.7E-08	NA
barium	5.7E-06	8.4E-07	6.5E-07	4.4E-06	NA
beryllium	NA	NA	3.7E-08	2.5E-07	NA
boron	NA	NA	NA	NA	NA
cadmium	NA	NA	NA	NA	NA
chromium vi	NA	NA	1.1E-07	7.7E-07	NA
cobalt	NA	NA	NA	NA	NA
copper	NA	NA	1.6E-07	1.1E-07	NA
lead	8.1E-06	4.7E-09	2.0E-07	1.3E-06	NA
magnesium	3.1E-03	4.5E-04	5.7E-04	3.8E-03	NA
manganese	6.6E-06	9.6E-07	1.0E-05	6.9E-05	NA
mercury	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA
nickel	NA	NA	1.3E-07	4.2E-08	NA
selenium	NA	NA	NA	NA	NA
silver	NA	NA	5.2E-09	NA	NA
thallium	1.6E-07	2.4E-08	NA	NA	NA
uranium-total	1.0E-06	1.5E-07	2.3E-07	1.5E-06	NA
vanadium	NA	NA	3.5E-07	2.3E-07	NA
zinc	NA	NA	1.0E-06	6.9E-06	NA
acetone	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.6E-06	1.6E-04	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA
methylene chloride	NA	NA	1.2E-10	2.5E-08	NA
pyrene	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA
di-n-octylphthalate	1.0E-05	5.1E-01	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA
ammonia	1.8E-05	2.6E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	NA
fluoride	2.2E-05	3.2E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA
sulfate	6.8E-03	1.0E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-7a
INTAKES OF CARCINOGENS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 1, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	1.2E-01	1.7E-01	1.2E+05	1.7E+05	NA	NA
Np_{237+1d}	2.0E-04	7.2E-05	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	3.4E-05	2.7E-05	NA	NA	NA	NA
$Pu_{239/240}$	1.0E-05	8.1E-06	2.9E-01	2.3E-01	NA	NA
Ra_{226+5d}	8.5E-01	6.1E+00	NA	NA	3.9E+01	3.4E+02
Ra_{228+1d}	1.0E-01	7.4E-01	NA	NA	7.3E+01	6.3E+02
Ru_{106}	3.2E-03	3.9E-06	NA	NA	NA	NA
Sr_{90+1d}	2.0E-02	4.0E-01	1.7E+05	3.3E+06	NA	NA
Tc_{99}	1.1E+00	5.3E+00	9.7E+06	4.5E+07	NA	NA
Th_{228+7d}	4.7E-04	1.6E-03	8.6E+00	2.9E+01	NA	NA
Th_{230}	7.2E-02	2.4E-01	1.0E+01	3.4E+01	2.4E-01	9.5E-01
Th_{232}	4.2E-03	1.4E-02	NA	NA	2.2E-01	8.8E-01
U_{234}	1.2E+00	1.4E+01	1.0E+03	1.2E+04	2.0E+02	2.9E+03
$U_{235/236}$	8.8E-02	1.1E+00	2.8E+02	3.3E+03	3.1E+01	4.5E+02
U_{238+2d}	1.2E+00	1.4E+01	9.7E+02	1.2E+04	2.6E+02	3.7E+03
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.0E-10	6.0E-11	3.1E-05	3.8E-06	5.5E-07	8.0E-08
beryllium	2.9E-11	1.1E-13	1.4E-06	5.2E-09	NA	NA
cadmium	1.0E-09	7.2E-09	4.4E-05	3.2E-04	1.4E-07	1.2E-06
chromium vi	2.6E-09	2.8E-09	NA	NA	NA	NA
nickel	8.3E-09	5.6E-09	3.0E-04	2.0E-04	4.3E-06	3.5E-06
benzene	1.5E-19	1.9E-19	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.6E-14	1.3E-13	2.8E-06	6.2E-06	8.2E-06	2.2E-05
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	4.3E-15	5.5E-15	1.1E-08	1.4E-08	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	4.0E-19	5.5E-19	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E-18	7.3E-18	NA	NA	NA	NA
n-nitrosodiphenylamine	8.1E-16	1.1E-15	NA	NA	NA	NA
n-nitrosodipropylamine	2.5E-19	3.4E-19	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-10	1.2E-09	4.1E-09	5.2E-09	NA	NA
trichloroethene	3.7E-10	4.7E-10	1.0E-09	1.3E-09	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E-12	2.0E-12	8.6E-07	1.1E-06	NA	NA
benzo(a)pyrene	4.7E-12	6.0E-12	2.1E-06	2.6E-06	NA	NA
benzo(b)fluoranthene	5.0E-12	6.4E-12	1.4E-06	1.8E-06	NA	NA
benzo(k)fluoranthene	2.4E-11	3.0E-11	6.8E-06	8.6E-06	NA	NA
chrysene	1.7E-12	2.2E-12	1.1E-06	1.4E-06	NA	NA
dibenzo(a,h)anthracene	7.6E-12	9.7E-12	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.3E-12	1.2E-11	2.7E-06	3.5E-06	NA	NA
aroclor-1254	5.8E-11	7.4E-11	NA	NA	NA	NA
aroclor-1260	4.4E-12	5.6E-12	NA	NA	NA	NA
4,4-ddt	1.7E-13	2.2E-13	NA	NA	NA	NA
4,4-dde	9.7E-15	1.2E-14	NA	NA	NA	NA
chlordane	8.1E-16	1.0E-15	NA	NA	NA	NA
dieldrin	1.7E-16	2.1E-16	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.4E-14	1.1E-13	NA	NA	NA	NA
octachlorodibenzofuran	5.5E-14	7.8E-14	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-7b
INTAKES OF CARCINOGENS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 2, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways:	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Contaminants of Concern						
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	7.7E-02	1.1E-01	1.3E+05	1.8E+05	NA	NA
Np_{237+1d}	9.3E-05	3.4E-05	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	7.5E-06	6.0E-06	NA	NA	NA	NA
$Pu_{239/240}$	4.5E-06	3.6E-06	NA	NA	NA	NA
Ra_{226+5d}	4.4E-01	3.1E+00	NA	NA	NA	NA
Ra_{228+1d}	1.7E-02	1.2E-01	NA	NA	NA	NA
Ru_{106}	3.4E-03	4.3E-06	NA	NA	NA	NA
Sr_{90+1d}	7.8E-03	1.6E-01	1.7E+05	3.4E+06	NA	NA
Tc_{99}	3.9E-01	1.8E+00	NA	NA	NA	NA
Th_{228+7d}	2.1E-04	7.1E-04	2.5E+01	8.3E+01	NA	NA
Th_{230}	9.3E-03	3.1E-02	1.3E+01	4.2E+01	NA	NA
Th_{232}	1.1E-03	3.5E-03	NA	NA	NA	NA
U_{234}	2.4E-01	2.9E+00	1.2E+03	1.5E+04	NA	NA
$U_{235/236}$	2.2E-02	2.7E-01	5.4E+02	6.5E+03	NA	NA
U_{238+2d}	3.1E-01	3.7E+00	1.5E+03	1.9E+04	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.2E-10	3.8E-11	NA	NA	NA	NA
beryllium	1.8E-11	6.5E-14	1.7E-06	6.3E-09	NA	NA
cadmium	9.1E-10	6.6E-09	3.0E-05	2.2E-04	NA	NA
chromium vi	1.7E-09	1.9E-09	7.0E-05	7.7E-05	NA	NA
nickel	6.9E-09	4.6E-09	3.7E-04	2.5E-04	NA	NA
benzene	2.7E-19	3.5E-19	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.3E-14	9.6E-14	2.6E-07	5.7E-07	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	1.4E-15	1.8E-15	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	5.0E-19	6.8E-19	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-18	2.2E-18	NA	NA	NA	NA
n-nitrosodiphenylamine	1.6E-15	2.2E-15	NA	NA	NA	NA
n-nitrosodipropylamine	4.7E-19	6.3E-19	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E-08	2.0E-08	NA	NA	NA	NA
trichloroethene	6.0E-09	7.6E-09	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.0E-12	1.3E-12	NA	NA	NA	NA
benzo(a)pyrene	3.4E-12	4.3E-12	NA	NA	NA	NA
benzo(b)fluoranthene	4.4E-12	5.6E-12	NA	NA	NA	NA
benzo(k)fluoranthene	2.2E-11	2.8E-11	NA	NA	NA	NA
chrysene	1.4E-12	1.8E-12	7.2E-07	9.1E-07	NA	NA
dibenzo(a,h)anthracene	5.9E-12	7.5E-12	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	7.9E-12	1.0E-11	NA	NA	NA	NA
aroclor-1254	2.1E-11	2.6E-11	NA	NA	NA	NA
aroclor-1260	8.1E-12	1.0E-11	NA	NA	NA	NA
4,4-ddt	1.9E-13	2.4E-13	NA	NA	NA	NA
4,4-dde	2.6E-15	3.3E-15	NA	NA	NA	NA
chlordane	9.3E-16	1.2E-15	NA	NA	NA	NA
dieldrin	8.2E-17	1.1E-16	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-13	2.1E-13	NA	NA	NA	NA
octachlorodibenzofuran	1.0E-13	1.5E-13	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI–7c
INTAKES OF CARCINOGENS FOR OFF–PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 3, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	1.2E–01	1.7E–01	1.3E+05	1.8E+05	NA	NA
Np_{237+1d}	2.0E–04	7.2E–05	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	3.4E–05	2.7E–05	NA	NA	NA	NA
$Pu_{239/240}$	1.0E–05	8.1E–06	NA	NA	NA	NA
Ra_{226+5d}	8.5E–01	6.1E+00	NA	NA	NA	NA
Ra_{228+1d}	1.0E–01	7.4E–01	7.1E+02	5.1E+03	NA	NA
Ru_{106}	3.2E–03	3.9E–06	NA	NA	NA	NA
Sr_{90+1d}	2.0E–02	4.0E–01	1.0E+05	2.1E+06	NA	NA
Tc_{99}	1.1E+00	5.3E+00	NA	NA	NA	NA
Th_{228+3d}	4.7E–04	1.6E–03	1.1E+01	3.7E+01	NA	NA
Th_{230}	7.2E–02	2.4E–01	1.5E+01	4.9E+01	NA	NA
Th_{232}	4.2E–03	1.4E–02	7.2E+00	2.4E+01	NA	NA
U_{234}	1.2E+00	1.4E+01	4.4E+03	5.3E+04	NA	NA
$U_{235/236}$	8.8E–02	1.1E+00	3.5E+02	4.2E+03	NA	NA
U_{238+2d}	1.2E+00	1.4E+01	4.7E+03	5.7E+04	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.0E–10	6.0E–11	NA	NA	NA	NA
beryllium	2.9E–11	1.1E–13	5.4E–07	2.0E–09	NA	NA
cadmium	1.0E–09	7.2E–09	2.5E–05	1.8E–04	NA	NA
chromium vi	2.6E–09	2.8E–09	NA	NA	NA	NA
nickel	8.3E–09	5.6E–09	2.5E–04	1.7E–04	NA	NA
benzene	1.5E–19	1.9E–19	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	5.6E–14	1.3E–13	1.8E–07	4.0E–07	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	4.3E–15	5.5E–15	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	4.0E–19	5.5E–19	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E–18	7.3E–18	6.3E–10	1.3E–09	NA	NA
n–nitrosodiphenylamine	8.1E–16	1.1E–15	NA	NA	NA	NA
n–nitrosodipropylamine	2.5E–19	3.4E–19	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E–10	1.2E–09	NA	NA	NA	NA
trichloroethene	3.7E–10	4.7E–10	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E–12	2.0E–12	8.6E–07	1.1E–06	NA	NA
benzo(a)pyrene	4.7E–12	6.0E–12	1.8E–06	2.2E–06	NA	NA
benzo(b)fluoranthene	5.0E–12	6.4E–12	1.8E–06	2.3E–06	NA	NA
benzo(k)fluoranthene	2.4E–11	3.0E–11	7.1E–06	9.0E–06	NA	NA
chrysene	1.7E–12	2.2E–12	1.1E–06	1.3E–06	NA	NA
dibenzo(a,h)anthracene	7.6E–12	9.7E–12	NA	NA	NA	NA
indeno(1,2,3–cd)pyrene	9.3E–12	1.2E–11	NA	NA	NA	NA
aroclor–1254	5.8E–11	7.4E–11	NA	NA	NA	NA
aroclor–1260	4.4E–12	5.6E–12	NA	NA	NA	NA
4,4–ddt	1.7E–13	2.2E–13	NA	NA	NA	NA
4,4–dde	9.7E–15	1.2E–14	NA	NA	NA	NA
chlordane	8.1E–16	1.0E–15	NA	NA	NA	NA
dieldrin	1.7E–16	2.1E–16	NA	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	7.4E–14	1.1E–13	NA	NA	NA	NA
octachlorodibenzofuran	5.5E–14	7.8E–14	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-7d
INTAKES OF CARCINOGENS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 4, CURRENT LAND USE WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	1.9E-01	2.7E-01	1.1E+05	1.5E+05	NA	NA
Np_{237+1d}	2.4E-04	8.7E-05	3.3E+02	1.2E+02	3.8E+00	1.7E+00
Pb_{210+2d}	NA	NA	5.6E+04	1.9E+05	NA	NA
Pu_{238}	2.3E-05	1.8E-05	1.2E-01	9.3E-02	NA	NA
$Pu_{239/240}$	1.3E-05	1.0E-05	2.9E-01	2.3E-01	3.7E-02	3.6E-02
Ra_{226+5d}	2.3E+00	1.7E+01	5.9E+03	4.3E+04	NA	NA
Ra_{228+1d}	1.3E-01	9.2E-01	1.1E+03	8.2E+03	NA	NA
Ru_{106}	6.5E-03	8.1E-06	3.2E+04	3.9E+01	NA	NA
Sr_{90+1d}	3.7E-02	7.4E-01	2.0E+05	4.0E+06	NA	NA
Tc_{99}	2.7E+00	1.2E+01	3.6E+07	1.7E+08	NA	NA
Th_{228+7d}	6.1E-04	2.1E-03	3.8E+01	1.3E+02	NA	NA
Th_{230}	1.3E-01	4.2E-01	2.7E+02	8.9E+02	1.4E+00	5.5E+00
Th_{232}	5.1E-03	1.7E-02	3.1E+01	1.0E+02	NA	NA
U_{234}	1.1E+00	1.4E+01	1.1E+04	1.3E+05	2.1E+04	3.1E+05
$U_{235/236}$	8.5E-02	1.0E+00	1.8E+03	2.2E+04	7.7E+02	1.1E+04
U_{238+2d}	1.1E+00	1.4E+01	1.0E+05	1.2E+06	2.2E+04	3.2E+05
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.7E-10	8.1E-11	1.1E-04	1.4E-05	3.5E-07	5.0E-08
beryllium	3.5E-11	1.3E-13	8.2E-07	2.9E-09	NA	NA
cadmium	1.5E-09	1.1E-08	9.2E-05	6.7E-04	NA	NA
chromium vi	3.3E-09	3.6E-09	7.5E-05	8.2E-05	3.2E-06	4.2E-06
nickel	1.2E-08	7.8E-09	4.3E-04	2.9E-04	8.3E-06	6.7E-06
benzene	9.1E-19	1.2E-18	1.1E-09	1.4E-09	NA	NA
bis(2-ethylhexyl)phthalate	1.2E-13	2.7E-13	1.5E-05	3.3E-05	NA	NA
dichloromethane	NA	NA	NA	NA	NA	NA
[illegible]ole	8.8E-15	1.1E-14	1.1E-07	1.4E-07	NA	NA
[illegible] tetrachloride	NA	NA	NA	NA	NA	NA
[illegible]form	1.8E-18	2.4E-18	NA	NA	NA	NA
[illegible]-dichloroethene	NA	NA	NA	NA	NA	NA
[illegible]-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E-18	1.7E-17	1.3E-08	2.5E-08	NA	NA
n-nitrosodiphenylamine	2.6E-15	3.7E-15	NA	NA	NA	NA
n-nitrosodipropylamine	1.5E-18	2.1E-18	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.6E-09	8.4E-09	2.3E-08	2.9E-08	7.7E-07	1.2E-06
trichloroethene	2.5E-09	3.2E-09	3.0E-09	3.9E-09	5.8E-09	8.9E-09
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.9E-12	4.9E-12	4.8E-05	6.1E-05	NA	NA
benzo(a)pyrene	1.3E-11	1.6E-11	5.5E-05	7.0E-05	NA	NA
benzo(b)fluoranthene	1.5E-11	1.9E-11	2.7E-04	3.5E-04	NA	NA
benzo(k)fluoranthene	7.8E-11	9.8E-11	1.7E-04	2.1E-04	NA	NA
chrysene	4.6E-12	5.8E-12	8.4E-05	1.1E-04	NA	NA
dibenzo(a,h)anthracene	2.3E-11	3.0E-11	5.1E-05	6.4E-05	NA	NA
indeno(1,2,3-cd)pyrene	2.8E-11	3.5E-11	1.2E-04	1.5E-04	NA	NA
aroclor-1254	8.4E-11	1.1E-10	1.2E-05	1.6E-05	NA	NA
aroclor-1260	2.7E-11	3.4E-11	3.0E-04	3.8E-04	NA	NA
4,4-ddt	5.8E-13	7.3E-13	NA	NA	NA	NA
4,4-dde	8.1E-15	1.0E-14	NA	NA	NA	NA
chlordane	1.5E-15	2.0E-15	NA	NA	NA	NA
dieldrin	1.9E-16	2.4E-16	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.8E-13	4.0E-13	4.2E-06	6.0E-06	NA	NA
octachlorodibenzofuran	3.4E-13	4.9E-13	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

TABLE A.VI-8a
INTAKES OF TOXICANTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 1, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways:	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.5E-16	6.9E-16	4.7E-08	6.0E-08	2.2E-11	3.4E-11
aluminum	NA	NA	NA	NA	NA	NA
antimony	1.6E-09	6.6E-10	1.1E-04	4.6E-05	NA	NA
arsenic	5.0E-10	6.0E-11	3.1E-05	3.8E-06	5.5E-07	8.0E-08
barium	3.4E-09	3.1E-08	NA	NA	NA	NA
beryllium	2.9E-11	1.1E-13	1.4E-06	5.2E-09	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.0E-09	7.2E-09	4.4E-05	3.2E-04	1.4E-07	1.2E-06
chromium vi	2.6E-09	2.8E-09	NA	NA	NA	NA
cobalt	5.8E-09	2.3E-09	NA	NA	NA	NA
copper	5.5E-08	3.3E-08	2.8E-03	1.7E-03	NA	NA
lead	2.9E-08	9.5E-08	2.7E-05	8.9E-05	2.4E-06	9.6E-06
magnesium	2.4E-06	7.6E-06	7.7E+00	2.5E+01	7.7E-03	3.0E-02
manganese	4.0E-08	1.4E-07	NA	NA	8.5E-07	3.6E-06
mercury	2.2E-09	1.6E-11	NA	NA	NA	NA
molybdenum	2.7E-09	2.7E-09	6.8E-04	6.8E-04	NA	NA
nickel	8.3E-09	5.6E-09	3.0E-04	2.0E-04	4.3E-06	3.5E-06
selenium	4.0E-10	4.3E-10	2.2E-05	2.3E-05	7.7E-07	9.9E-07
silver	3.7E-09	9.9E-08	5.5E-04	1.5E-02	6.2E-07	2.0E-05
thallium	2.4E-10	4.7E-11	NA	NA	NA	NA
uranium-total	1.9E-09	2.3E-08	2.3E-06	2.8E-05	3.6E-07	5.1E-06
vanadium	1.3E-09	4.1E-11	NA	NA	NA	NA
zinc	2.2E-05	8.9E-06	4.5E-01	1.8E-01	7.7E-05	3.7E-05
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.6E-14	1.3E-13	2.8E-06	6.2E-06	8.2E-06	2.2E-05
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	4.0E-19	5.5E-19	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	8.5E-07	1.1E-06	NA	NA
methylene chloride	3.6E-18	7.3E-18	NA	NA	NA	NA
pyrene	NA	NA	9.6E-07	1.2E-06	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	3.0E-07	3.9E-07	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-10	1.2E-09	4.1E-09	5.2E-09	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-13	2.2E-13	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	1.7E-16	2.1E-16	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-8b
INTAKES OF TOXICANTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 2, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways:	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.9E-16	2.4E-16	1.2E-07	1.5E-07	NA	NA
aluminum	NA	NA	NA	NA	NA	NA
antimony	1.5E-09	5.8E-10	NA	NA	NA	NA
arsenic	3.2E-10	3.8E-11	NA	NA	NA	NA
barium	1.9E-09	1.8E-08	1.3E-04	1.2E-03	NA	NA
beryllium	1.8E-11	6.5E-14	1.7E-06	6.3E-09	NA	NA
boron	NA	NA	2.4E-03	1.8E-02	NA	NA
cadmium	9.1E-10	6.6E-09	3.0E-05	2.2E-04	NA	NA
chromium vi	1.7E-09	1.9E-09	7.0E-05	7.7E-05	NA	NA
cobalt	4.3E-09	1.7E-09	3.7E-04	1.5E-04	NA	NA
copper	1.9E-08	1.1E-08	3.2E-03	1.9E-03	NA	NA
lead	1.6E-09	5.4E-09	2.0E-05	6.8E-05	NA	NA
magnesium	1.5E-06	4.8E-06	5.8E+00	1.9E+01	NA	NA
manganese	2.4E-08	8.5E-08	5.7E-03	2.0E-02	NA	NA
mercury	7.1E-10	5.1E-12	NA	NA	NA	NA
molybdenum	1.7E-09	1.7E-09	1.1E-03	1.1E-03	NA	NA
nickel	6.9E-09	4.6E-09	3.7E-04	2.5E-04	NA	NA
selenium	3.4E-10	3.6E-10	2.1E-05	2.2E-05	NA	NA
silver	2.8E-09	7.4E-08	NA	NA	NA	NA
thallium	2.5E-10	5.0E-11	1.9E-05	3.9E-06	NA	NA
uranium-total	5.0E-10	6.0E-09	3.7E-06	4.4E-05	NA	NA
vanadium	8.5E-10	2.7E-11	NA	NA	NA	NA
zinc	4.1E-05	1.6E-05	6.1E-01	2.4E-01	NA	NA
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.3E-14	9.6E-14	2.6E-07	5.7E-07	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	5.0E-19	6.8E-19	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	6.6E-07	8.3E-07	NA	NA
methylene chloride	1.1E-18	2.2E-18	NA	NA	NA	NA
pyrene	NA	NA	6.2E-06	7.9E-06	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	2.9E-06	3.7E-06	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E-08	2.0E-08	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	1.9E-13	2.4E-13	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	8.2E-17	1.1E-16	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-8c
INTAKES OF TOXICANTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 3, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways:	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.5E-16	6.9E-16	2.5E-08	3.1E-08	NA	NA
aluminum	NA	NA	NA	NA	NA	NA
antimony	1.6E-09	6.6E-10	4.0E-05	1.6E-05	NA	NA
arsenic	5.0E-10	6.0E-11	NA	NA	NA	NA
barium	3.4E-09	3.1E-08	1.2E-04	1.1E-03	NA	NA
beryllium	2.9E-11	1.1E-13	5.4E-07	2.0E-09	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.0E-09	7.2E-09	2.5E-05	1.8E-04	NA	NA
chromium vi	2.6E-09	2.8E-09	NA	NA	NA	NA
cobalt	5.8E-09	2.3E-09	NA	NA	NA	NA
copper	5.5E-08	3.3E-08	NA	NA	NA	NA
lead	2.9E-08	9.5E-08	2.3E-05	7.7E-05	NA	NA
magnesium	2.4E-06	7.6E-06	1.5E+01	4.9E+01	NA	NA
manganese	4.0E-08	1.4E-07	6.5E-03	2.3E-02	NA	NA
mercury	2.2E-09	1.6E-11	NA	NA	NA	NA
molybdenum	2.7E-09	2.7E-09	6.7E-04	6.7E-04	NA	NA
nickel	8.3E-09	5.6E-09	2.5E-04	1.7E-04	NA	NA
selenium	4.0E-10	4.3E-10	NA	NA	NA	NA
silver	3.7E-09	9.9E-08	NA	NA	NA	NA
thallium	2.4E-10	4.7E-11	2.2E-05	4.3E-06	NA	NA
uranium-total	1.9E-09	2.3E-08	1.2E-05	1.5E-04	NA	NA
vanadium	1.3E-09	4.1E-11	6.5E-05	2.1E-06	NA	NA
zinc	2.2E-05	8.9E-06	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.6E-14	1.3E-13	1.8E-07	4.0E-07	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	4.0E-19	5.5E-19	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	7.1E-07	9.1E-07	NA	NA
methylene chloride	3.6E-18	7.3E-18	6.3E-10	1.3E-09	NA	NA
pyrene	NA	NA	7.8E-07	9.9E-07	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	1.8E-07	2.4E-07	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-10	1.2E-09	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-13	2.2E-13	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	1.7E-16	2.1E-16	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-8d
INTAKES OF TOXICANTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 4, CURRENT LAND USE WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways:	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.7E-16	6.0E-16	4.8E-08	6.1E-08	8.1E-12	1.2E-11
aluminum	NA	NA	NA	NA	NA	NA
antimony	2.5E-09	9.9E-10	3.2E-04	1.3E-04	NA	NA
arsenic	6.7E-10	8.1E-11	1.1E-04	1.4E-05	3.5E-07	5.0E-08
barium	4.0E-09	3.7E-08	9.9E-05	9.3E-04	1.7E-06	1.9E-05
beryllium	3.5E-11	1.3E-13	8.2E-07	2.9E-09	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.5E-09	1.1E-08	9.2E-05	6.7E-04	NA	NA
chromium vi	3.3E-09	3.6E-09	7.5E-05	8.2E-05	3.2E-06	4.2E-06
cobalt	7.4E-09	3.0E-09	NA	NA	NA	NA
copper	4.9E-08	3.0E-08	5.7E-03	3.4E-03	1.0E-05	7.5E-06
lead	1.3E-08	4.2E-08	5.9E-04	2.0E-03	1.4E-07	5.6E-07
magnesium	2.7E-06	8.6E-06	8.9E+00	2.9E+01	1.7E-02	6.5E-02
manganese	4.9E-08	1.7E-07	7.2E-03	2.5E-02	1.7E-05	7.1E-05
mercury	2.3E-09	1.6E-11	1.4E-03	1.0E-05	NA	NA
molybdenum	3.1E-09	3.1E-09	6.0E-04	6.0E-04	NA	NA
nickel	1.2E-08	7.8E-09	4.3E-04	2.9E-04	8.3E-06	6.7E-06
selenium	5.7E-10	6.0E-10	2.3E-05	2.4E-05	NA	NA
silver	4.7E-09	1.3E-07	6.1E-04	1.6E-02	NA	NA
thallium	3.9E-10	7.8E-11	8.1E-06	1.6E-06	NA	NA
uranium-total	1.7E-09	2.1E-08	3.4E-05	4.1E-04	1.4E-06	2.0E-05
vanadium	1.6E-09	5.0E-11	5.1E-05	1.6E-06	4.1E-06	1.6E-07
zinc	4.9E-05	2.0E-05	1.5E+00	5.9E-01	2.0E-04	9.5E-05
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.2E-13	2.7E-13	1.5E-05	3.3E-05	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	1.8E-18	2.4E-18	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	1.1E-08	1.8E-08
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	2.7E-05	3.4E-05	NA	NA
methylene chloride	8.3E-18	1.7E-17	1.3E-08	2.5E-08	NA	NA
pyrene	NA	NA	6.5E-05	8.2E-05	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	3.0E-05	3.9E-05	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.6E-09	8.4E-09	2.3E-08	2.9E-08	7.7E-07	1.2E-06
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	5.8E-13	7.3E-13	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	1.9E-16	2.4E-16	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI–9a
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	5.9E−03	4.8E−02	1.7E−01	2.4E−01	1.4E+04	1.2E+05	1.7E+05	3.3E+03	NA	3.1E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.3E−03	9.5E−03	1.7E−04	6.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	3.9E−02	2.5E−01	1.8E−05	1.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.7E−03	4.9E−02	9.1E−06	7.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	2.9E+00	2.2E+01	2.4E+00	1.7E+01	NA	NA	NA	NA	NA	NA	1.6E+05	2.9E+04	1.4E+03	1.0E+04	NA	NA
Ra_{228+1d}	1.3E+00	8.0E+00	2.2E−01	1.6E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	2.1E−03	1.3E−02	2.6E−03	3.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.6E−02	2.6E−01	4.7E−02	9.3E−01	3.9E+05	1.7E+05	3.4E+06	1.1E+04	NA	1.0E+02	NA	NA	NA	NA	NA	NA
Tc_{99}	4.3E−01	3.0E+00	4.8E+00	2.3E+01	3.4E+06	2.6E+07	1.2E+08	1.5E+04	NA	1.5E+02	NA	NA	NA	NA	NA	NA
Th_{228+7d}	1.7E−01	1.1E+00	6.7E−04	2.3E−03	9.1E+01	9.9E+00	3.4E+01	7.5E+03	NA	7.1E+01	NA	NA	NA	NA	NA	NA
Th_{230}	1.6E+01	1.0E+02	2.6E−01	8.8E−01	3.0E+02	3.3E+01	1.1E+02	2.4E+04	NA	2.3E+02	1.2E+05	1.8E+04	9.3E+00	3.2E+01	NA	NA
Th_{232}	4.5E−01	2.9E+00	7.4E−03	2.5E−02	8.7E+01	9.6E+00	3.2E+01	7.1E+03	NA	6.6E+01	NA	NA	NA	NA	NA	NA
U_{234}	9.5E+00	6.1E+01	1.4E+00	1.7E+01	3.7E+04	4.9E+03	5.9E+04	6.4E+04	NA	6.0E+02	1.2E+05	1.9E+04	2.8E+02	3.4E+03	NA	NA
$U_{235/236}$	6.1E−01	3.9E+00	9.2E−02	1.1E+00	9.2E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	NA	NA	NA	NA	NA	NA
U_{238+2d}	8.1E+00	5.2E+01	1.2E+00	1.5E+01	5.4E+04	7.2E+03	8.6E+04	9.3E+04	NA	8.8E+02	1.2E+05	1.8E+04	2.7E+02	3.3E+03	NA	NA
Rn_{222+4d}	5.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.1E−11	6.2E−10	5.0E−10	6.0E−11	NA	NA	NA	NA	NA	NA	7.6E−04	1.7E−04	6.7E−05	8.1E−06	NA	2.2E−06
beryllium	7.8E−12	6.2E−11	2.9E−11	1.1E−13	7.5E−07	1.4E−06	5.2E−09	3.5E−06	1.1E−06	NA	3.2E−04	6.3E−05	1.1E−05	3.9E−08	NA	9.1E−07
cadmium	3.2E−11	3.8E−09	1.1E−09	7.9E−09	1.0E−04	3.0E−05	2.2E−04	4.7E−06	1.5E−06	NA	3.5E−03	1.2E−02	1.7E−03	1.3E−02	NA	1.0E−05
chromium vi	1.4E−10	1.6E−09	2.7E−09	3.0E−09	3.8E−05	1.2E−04	1.3E−04	5.8E−05	1.9E−05	NA	2.1E−01	6.3E−02	3.3E−02	3.7E−02	NA	1.2E−03
nickel	1.6E−10	9.4E−09	9.1E−09	6.0E−09	5.1E−04	5.1E−04	3.4E−04	5.8E−05	9.3E−07	NA	1.1E−01	1.8E−01	7.8E−02	5.2E−02	NA	3.1E−05
benzene	7.1E−17	8.1E−16	3.3E−19	4.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	8.4E−14	4.1E−13	7.5E−14	1.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.1E−14	1.1E−12	1.2E−14	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.0E−16	3.2E−15	7.3E−19	9.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−14	4.9E−13	9.5E−18	1.9E−17	1.3E−05	3.4E−10	6.9E−10	1.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.3E−14	1.5E−13	9.6E−16	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.4E−15	1.2E−14	5.7E−19	7.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.3E−08	2.0E−07	1.4E−09	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E−08	7.0E−07	5.6E−10	7.1E−10	NA	NA	NA	NA	NA	NA	2.5E−04	9.9E−05	4.3E−08	5.6E−08	9.2E−04	4.6E−05
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E−13	2.1E−12	2.7E−12	3.5E−12	4.2E−07	1.0E−06	1.3E−06	1.4E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.7E−13	2.4E−12	8.4E−12	1.1E−11	1.9E−07	1.6E−06	2.1E−06	1.2E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.7E−13	2.4E−12	8.6E−12	1.1E−11	2.2E−07	2.0E−06	2.5E−06	1.4E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.7E−13	2.4E−12	5.0E−11	6.3E−11	9.9E−08	8.2E−06	1.0E−05	1.6E−07	1.5E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	3.0E−13	2.0E−12	2.6E−12	3.3E−12	4.9E−07	1.2E−06	1.5E−06	1.6E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E−13	7.9E−13	1.5E−11	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.4E−13	1.5E−12	1.6E−11	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.1E−13	1.2E−11	7.1E−11	8.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	8.4E−15	8.6E−14	9.5E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	9.7E−16	1.7E−14	2.4E−13	3.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	6.0E−16	4.1E−15	6.0E−15	7.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.2E−16	7.5E−16	6.9E−16	8.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.7E−16	1.2E−15	1.2E−16	1.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.2E−17	1.3E−16	1.0E−13	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E−17	1.1E−16	1.3E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–9b
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
NORTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	2.1E−03	1.7E−02	6.0E−02	8.4E−02	1.6E+04	1.4E+05	2.0E+05	3.8E+03	NA	3.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.5E−04	4.8E−03	8.7E−05	3.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.5E−02	9.5E−02	7.0E−06	5.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.1E−03	2.0E−02	3.7E−06	3.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.0E+00	7.5E+00	8.4E−01	6.1E+00	NA	NA	NA	NA	NA	NA	7.4E+04	1.3E+04	6.3E+02	4.6E+03	NA	NA
Ra_{228+1d}	1.3E−01	8.0E−01	2.2E−02	1.6E−01	NA	NA	NA	NA	NA	NA	1.9E+05	2.9E+04	5.2E+02	3.9E+03	NA	NA
Ru_{106}	2.1E−03	1.3E−02	2.6E−03	3.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.6E−03	4.7E−02	8.5E−03	1.7E−01	1.6E+05	6.9E+04	1.4E+06	4.4E+03	NA	4.2E+01	NA	NA	NA	NA	NA	NA
Tc_{99}	3.0E−02	2.1E−01	3.4E−01	1.6E+00	1.2E+06	9.7E+06	4.5E+07	5.7E+03	NA	5.4E+01	NA	NA	NA	NA	NA	NA
Th_{228+7d}	4.3E−02	2.7E−01	1.6E−04	5.6E−04	6.6E+01	7.1E+00	2.4E+01	5.4E+03	NA	5.1E+01	7.3E+04	1.1E+04	4.4E+00	1.5E+01	NA	NA
Th_{230}	9.5E−01	6.1E+00	1.5E−02	5.2E−02	1.4E+02	1.5E+01	5.0E+01	1.1E+04	NA	1.0E+02	6.4E+04	9.7E+03	5.1E+00	1.7E+01	NA	NA
Th_{232}	6.4E−02	4.1E−01	1.0E−03	3.5E−03	NA	NA	NA	NA	NA	NA	2.4E+04	3.6E+03	1.9E+00	6.4E+00	NA	NA
U_{234}	1.7E+00	1.1E+01	2.6E−01	3.1E+00	9.7E+03	1.3E+03	1.6E+04	1.7E+04	NA	1.6E+02	1.7E+05	2.5E+04	3.8E+02	4.7E+03	NA	NA
$U_{235/236}$	1.5E−01	9.7E−01	2.2E−02	2.7E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	2.0E+00	1.3E+01	2.9E−01	3.5E+00	1.1E+04	1.4E+03	1.7E+04	1.9E+04	NA	1.8E+02	1.9E+05	2.8E+04	4.2E+02	5.2E+03	NA	NA
Rn_{222+4d}	2.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.9E−11	2.5E−10	2.0E−10	2.4E−11	NA	NA	NA	NA	NA	NA	4.3E−03	9.3E−04	3.8E−04	4.6E−05	NA	1.2E−05
beryllium	2.9E−12	2.3E−11	1.1E−11	4.0E−14	4.0E−07	7.6E−07	2.7E−09	1.8E−06	5.8E−07	NA	NA	NA	NA	NA	NA	NA
cadmium	1.5E−11	1.8E−09	5.1E−10	3.7E−09	9.1E−05	2.7E−05	2.0E−04	4.2E−06	1.3E−06	NA	1.8E−04	6.3E−04	8.8E−05	6.4E−04	NA	5.1E−07
chromium vi	5.4E−11	6.2E−10	1.0E−09	1.1E−09	2.8E−05	8.5E−05	9.3E−05	4.2E−05	1.4E−05	NA	NA	NA	NA	NA	NA	NA
nickel	7.1E−11	4.1E−09	4.0E−09	2.7E−09	4.6E−04	4.7E−04	3.1E−04	5.3E−05	8.5E−07	NA	NA	NA	NA	NA	NA	NA
benzene	5.8E−17	6.7E−16	2.7E−19	3.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	4.5E−14	2.2E−13	4.0E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.1E−14	2.3E−13	2.6E−15	3.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−16	2.3E−15	5.1E−19	7.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E−14	1.8E−13	3.5E−18	7.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.7E−14	1.7E−13	1.1E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.1E−15	9.0E−15	4.4E−19	6.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.3E−07	1.1E−06	8.0E−09	1.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.6E−07	3.8E−06	3.1E−09	3.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E−13	1.0E−12	1.3E−12	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E−13	1.2E−12	4.3E−12	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.9E−13	1.3E−12	4.5E−12	5.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.9E−13	1.2E−12	2.5E−11	3.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.6E−13	1.1E−12	1.4E−12	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.0E−14	3.8E−13	7.4E−12	9.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.2E−13	7.9E−13	8.3E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	2.1E−13	5.1E−12	3.0E−11	3.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	7.1E−15	7.3E−14	8.1E−12	1.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.1E−16	1.2E−14	1.7E−13	2.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	3.1E−16	2.2E−15	3.2E−15	4.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.2E−16	7.5E−16	6.9E−16	8.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E−16	7.9E−16	7.8E−17	1.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.4E−17	1.4E−16	1.1E−13	1.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.4E−17	8.4E−17	9.8E−14	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–9c
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
SOUTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.6E−03	1.3E−02	4.7E−02	6.6E−02	1.2E+04	9.9E+04	1.4E+05	2.6E+03	NA	2.5E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.7E−04	4.2E−03	7.6E−05	2.8E−05	NA	NA	NA	NA	NA	NA	1.2E+05	2.2E+04	2.3E+02	8.6E+01	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.1E−02	1.3E−01	9.7E−06	7.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.8E−03	1.8E−02	3.3E−06	2.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+3d}	5.6E−01	4.1E+00	4.7E−01	3.4E+00	NA	NA	NA	NA	NA	NA	1.7E+05	3.1E+04	1.5E+03	1.1E+04	NA	NA
Ra_{228+1d}	2.4E−01	1.5E+00	4.3E−02	3.1E−01	1.1E+03	6.8E+02	4.9E+03	5.3E+03	NA	5.0E+01	2.2E+05	3.2E+04	5.9E+02	4.4E+03	NA	NA
Ru_{106}	1.1E−03	6.9E−03	1.4E−03	1.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.5E−03	4.6E−02	8.3E−03	1.7E−01	3.0E+05	1.3E+05	2.6E+06	8.4E+03	NA	7.9E+01	2.8E+05	7.3E+04	7.6E+03	1.5E+05	NA	NA
Tc_{99}	3.7E−02	2.6E−01	4.2E−01	2.0E+00	NA	NA	NA	NA	NA	NA	1.2E+06	2.0E+05	2.1E+05	9.9E+05	NA	NA
Th_{228+7d}	4.4E−02	2.7E−01	1.7E−04	5.7E−04	7.0E+01	7.6E+00	2.6E+01	5.7E+03	NA	5.4E+01	4.2E+05	6.2E+04	2.5E+01	8.9E+01	NA	NA
Th_{230}	2.3E+00	1.5E+01	3.8E−02	1.3E−01	1.1E+02	1.2E+01	4.0E+01	8.8E+03	NA	8.3E+01	1.0E+05	1.6E+04	8.3E+00	2.8E+01	NA	NA
Th_{232}	9.3E−02	6.0E−01	1.5E−03	5.1E−03	NA	NA	NA	NA	NA	NA	1.3E+05	2.0E+04	1.1E+01	3.6E+01	NA	NA
U_{234}	2.4E+00	1.6E+01	3.6E−01	4.4E+00	7.4E+03	9.9E+02	1.2E+04	1.3E+04	NA	1.2E+02	4.1E+06	6.3E+05	9.4E+03	1.2E+05	NA	NA
$U_{235/236}$	1.9E−01	1.2E+00	2.8E−02	3.3E−01	NA	NA	NA	NA	NA	NA	9.2E+04	1.4E+04	2.1E+02	2.6E+03	NA	NA
U_{238+2d}	2.4E+00	1.6E+01	3.6E−01	4.4E+00	6.9E+03	9.2E+02	1.1E+04	1.2E+04	NA	1.1E+02	4.9E+06	7.4E+05	1.1E+04	1.4E+05	NA	NA
Rn_{222+4d}	7.4E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.2E−11	1.9E−10	1.5E−10	1.8E−11	NA	NA	NA	NA	NA	NA	8.5E−03	1.9E−03	7.5E−04	9.1E−05	NA	2.4E−05
beryllium	2.5E−12	2.0E−11	9.6E−12	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.4E−12	1.0E−09	2.9E−10	2.1E−09	NA	NA	NA	NA	NA	NA	7.8E−04	2.8E−03	3.9E−04	2.8E−03	NA	2.2E−06
chromium vi	4.0E−11	4.5E−10	7.6E−10	8.3E−10	NA	NA	NA	NA	NA	NA	3.0E−02	9.1E−03	4.8E−03	5.3E−03	NA	1.7E−04
nickel	4.5E−11	2.6E−09	2.5E−09	1.7E−09	NA	NA	NA	NA	NA	NA	8.0E−04	1.3E−03	5.8E−04	3.8E−04	NA	2.3E−07
benzene	1.7E−17	1.9E−16	7.7E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.3E−14	1.1E−13	2.1E−14	4.7E−14	NA	NA	NA	NA	NA	NA	2.7E−05	3.2E−06	1.9E−07	4.8E−07	NA	6.6E−05
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	7.1E−15	1.5E−13	1.7E−15	2.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.7E−17	8.0E−16	1.8E−19	2.4E−19	NA	NA	NA	NA	NA	NA	7.9E−04	1.6E−04	2.0E−08	2.8E−08	3.0E−03	7.7E−05
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0E−03	5.4E−04	9.7E−08	1.4E−07	1.1E−02	4.5E−04
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.5E−03	2.6E−03	5.3E−07	6.9E−07	3.2E−02	4.2E−04
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E−14	9.1E−14	1.8E−18	3.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	9.7E−15	6.1E−14	4.0E−16	5.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	3.3E−16	2.7E−15	1.3E−19	1.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E−09	8.3E−08	6.0E−10	7.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.9E−08	2.9E−07	2.3E−10	2.9E−10	NA	NA	NA	NA	NA	NA	9.3E−04	3.7E−04	1.6E−07	2.1E−07	3.5E−03	1.8E−04
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.8E−14	5.1E−13	6.6E−13	8.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.1E−14	5.9E−13	2.1E−12	2.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	9.1E−14	5.8E−13	2.1E−12	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.8E−14	5.1E−13	1.0E−11	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	7.8E−14	5.3E−13	6.9E−13	8.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.7E−14	1.7E−13	3.4E−12	4.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.6E−14	3.6E−13	3.8E−12	4.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.6E−13	3.7E−12	2.1E−11	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	2.0E−15	2.1E−14	2.3E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	3.0E−16	5.3E−15	7.4E−14	9.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	3.0E−16	2.1E−15	3.1E−15	3.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.6E−17	3.6E−16	3.3E−16	4.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.1E−17	6.2E−16	6.1E−17	7.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	8.4E−18	5.0E−17	3.8E−14	5.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.2E−18	2.5E−17	2.9E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–9d
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.5E−03	1.2E−02	4.4E−02	6.1E−02	1.4E+04	1.2E+05	1.7E+05	3.3E+03	NA	3.1E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.6E−04	3.4E−03	6.2E−05	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.3E−02	8.1E−02	5.9E−06	4.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.0E−03	1.3E−02	2.3E−06	1.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	4.8E−01	3.5E+00	4.0E−01	2.9E+00	NA	NA	NA	NA	NA	NA	1.1E+05	2.1E+04	9.7E+02	7.1E+03	NA	NA
Ra_{228+1d}	9.5E−02	6.0E−01	1.7E−02	1.2E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.4E−03	8.7E−03	1.7E−03	2.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.8E−03	2.8E−02	5.1E−03	1.0E−01	5.8E+05	2.5E+05	5.0E+06	1.6E+04	NA	1.5E+02	NA	NA	NA	NA	NA	NA
Tc_{99}	2.1E−02	1.5E−01	2.3E−01	1.1E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	3.2E−02	2.0E−01	1.2E−04	4.2E−04	8.0E+01	8.6E+00	2.9E+01	6.5E+03	NA	6.1E+01	NA	NA	NA	NA	NA	NA
Th_{230}	7.4E−01	4.8E+00	1.2E−02	4.0E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232}	5.1E−02	3.3E−01	8.3E−04	2.8E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.3E+00	8.2E+00	1.9E−01	2.3E+00	6.7E+03	8.8E+02	1.1E+04	1.1E+04	NA	1.1E+02	1.0E+05	1.6E+04	2.3E+02	2.9E+03	NA	NA
$U_{235/236}$	1.1E−01	7.1E−01	1.6E−02	2.0E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.5E+00	9.7E+00	2.2E−01	2.7E+00	9.2E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	8.8E+04	1.3E+04	2.0E+02	2.5E+03	NA	NA
Rn_{222+4d}	1.6E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.8E−11	2.4E−10	1.9E−10	2.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E−12	1.7E−11	8.1E−12	2.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.0E−11	1.3E−09	3.5E−10	2.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.9E−11	4.4E−10	7.5E−10	8.1E−10	NA	NA	NA	NA	NA	NA	5.5E−04	1.6E−04	8.6E−05	9.6E−05	NA	3.2E−06
nickel	5.2E−11	3.0E−09	2.9E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.7E−17	1.9E−16	7.7E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.1E−14	1.0E−13	1.8E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.5E−15	9.7E−14	1.1E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.4E−17	6.9E−16	1.5E−19	2.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−14	6.4E−14	1.2E−18	2.5E−18	NA	NA	NA	NA	NA	NA	2.7E−05	3.9E−06	2.3E−11	5.2E−11	1.0E−04	1.1E−06
n−nitrosodiphenylamine	1.2E−14	7.7E−14	5.1E−16	7.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	3.2E−16	2.7E−15	1.3E−19	1.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E−08	4.0E−07	2.9E−09	3.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	9.1E−08	1.3E−06	1.1E−09	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.8E−14	3.8E−13	4.9E−13	6.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.5E−14	4.2E−13	1.5E−12	1.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.1E−14	4.6E−13	1.7E−12	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.5E−14	4.2E−13	8.7E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	5.8E−14	3.9E−13	5.2E−13	6.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.1E−14	1.3E−13	2.6E−12	3.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.4E−14	2.8E−13	3.0E−12	3.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	9.1E−14	2.1E−12	1.3E−11	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	2.0E−15	2.1E−14	2.3E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.5E−16	4.3E−15	6.0E−14	7.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.6E−16	1.1E−15	1.6E−15	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.4E−17	3.4E−16	3.2E−16	4.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E−17	3.8E−16	3.7E−17	4.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	9.7E−18	5.7E−17	4.4E−14	6.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.1E−18	2.5E−17	2.9E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–9e
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.8E−03	3.1E−02	1.1E−01	1.5E−01	1.7E+04	1.4E+05	2.0E+05	3.8E+03	NA	3.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−03	8.4E−03	1.5E−04	5.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.8E−02	1.8E−01	1.3E−05	1.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.9E−03	3.1E−02	5.8E−06	4.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	3.4E+00	2.5E+01	2.8E+00	2.0E+01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	4.2E−01	2.6E+00	7.4E−02	5.3E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{105}	2.2E−03	1.4E−02	2.7E−03	3.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.1E−02	1.1E−01	2.0E−02	4.1E−01	8.3E+05	3.6E+05	7.2E+06	2.3E+04	NA	2.2E+02	NA	NA	NA	NA	NA	NA
Tc_{99}	7.9E−02	5.5E−01	8.8E−01	4.2E+00	1.7E+06	1.3E+07	6.3E+07	7.9E+03	NA	7.5E+01	NA	NA	NA	NA	NA	NA
Th_{228+7d}	7.7E−02	4.8E−01	2.9E−04	1.0E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	4.3E+00	2.8E+01	7.0E−02	2.3E−01	9.6E+01	1.1E+01	3.5E+01	7.8E+03	NA	7.4E+01	NA	NA	NA	NA	NA	NA
Th_{232}	1.6E−01	1.0E+00	2.7E−03	8.8E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.8E+00	2.5E+01	5.7E−01	6.8E+00	1.7E+04	2.3E+03	2.7E+04	3.0E+04	NA	2.8E+02	NA	NA	NA	NA	NA	NA
$U_{235/236}$	3.1E−01	2.0E+00	4.7E−02	5.6E−01	1.8E+03	2.4E+02	2.9E+03	3.1E+03	NA	2.9E+01	NA	NA	NA	NA	NA	NA
U_{238+2d}	4.1E+00	2.6E+01	6.0E−01	7.3E+00	1.7E+04	2.3E+03	2.8E+04	3.0E+04	NA	2.8E+02	NA	NA	NA	NA	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.4E−11	3.8E−10	3.1E−10	3.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	5.6E−12	4.4E−11	2.1E−11	7.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.1E−11	2.5E−09	7.1E−10	5.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.7E−11	1.1E−09	1.9E−09	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E−10	6.4E−09	6.2E−09	4.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.0E−16	1.2E−15	4.7E−19	6.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	9.1E−14	4.4E−13	8.1E−14	1.8E−13	7.0E−07	2.9E−07	6.6E−07	1.8E−07	2.4E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.4E−14	7.2E−13	7.9E−15	1.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.2E−16	4.3E−15	9.7E−19	1.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E−13	6.1E−13	1.2E−17	2.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.7E−14	1.7E−13	1.1E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.0E−15	1.6E−14	8.0E−19	1.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.7E−08	3.1E−07	2.3E−09	2.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.1E−08	1.1E−06	8.4E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.5E−13	2.3E−12	3.0E−12	3.8E−12	8.1E−07	2.0E−06	2.5E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.3E−13	2.8E−12	9.7E−12	1.2E−11	4.5E−07	3.8E−06	4.8E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.8E−13	2.5E−12	8.9E−12	1.1E−11	4.4E−07	3.9E−06	5.0E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.2E−13	2.7E−12	5.7E−11	7.2E−11	2.3E−07	1.9E−05	2.4E−05	3.7E−07	3.5E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	3.0E−13	2.0E−12	2.6E−12	3.3E−12	1.2E−06	2.9E−06	3.6E−06	3.9E−07	3.8E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−13	9.1E−13	1.8E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.5E−13	1.6E−12	1.7E−11	2.1E−11	1.5E−07	5.2E−06	6.7E−06	1.7E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	6.2E−13	1.5E−11	8.5E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.2E−14	1.3E−13	1.4E−11	1.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.2E−15	2.1E−14	3.0E−13	3.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	5.5E−16	3.8E−15	5.6E−15	7.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.2E−16	7.5E−16	6.9E−16	8.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E−16	1.1E−15	1.1E−16	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.7E−17	1.6E−16	1.2E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.6E−17	1.5E−16	1.8E−13	2.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–9f
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.9E−03	1.5E−02	5.4E−02	7.5E−02	1.3E+04	1.2E+05	1.6E+05	3.1E+03	NA	2.9E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.1E−04	4.6E−03	8.2E−05	3.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.4E−02	1.5E−01	1.1E−05	9.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.2E−03	2.1E−02	3.9E−06	3.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+3d}	6.3E−01	4.6E+00	5.2E−01	3.8E+00	NA	NA	NA	NA	NA	NA	5.9E+04	1.1E+04	5.1E+02	3.7E+03	NA	NA
Ra_{228+1d}	2.6E−01	1.6E+00	4.5E−02	3.3E−01	1.1E+03	6.8E+02	4.9E+03	5.3E+03	NA	5.0E+01	NA	NA	NA	NA	NA	NA
Ru_{106}	1.2E−03	7.2E−03	1.4E−03	1.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.6E−03	5.6E−02	1.0E−02	2.0E−01	3.5E+05	1.5E+05	3.0E+06	9.7E+03	NA	9.1E+01	NA	NA	NA	NA	NA	NA
Tc_{99}	6.5E−02	4.5E−01	7.3E−01	3.4E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	5.1E−02	3.2E−01	2.0E−04	6.7E−04	7.0E+01	7.6E+00	2.6E+01	5.7E+03	NA	5.4E+01	2.9E+04	4.3E+03	1.8E+00	6.2E+00	NA	NA
Th_{230}	2.3E+00	1.5E+01	3.8E−02	1.3E−01	1.1E+02	1.2E+01	4.0E+01	8.8E+03	NA	8.3E+01	3.4E+04	5.2E+03	2.7E+00	9.4E+00	NA	NA
Th_{232}	1.1E−01	7.0E−01	1.8E−03	5.9E−03	NA	NA	NA	NA	NA	NA	1.5E+04	2.2E+03	1.2E+00	4.0E+00	NA	NA
U_{234}	3.0E+00	1.9E+01	4.5E−01	5.4E+00	1.1E+04	1.4E+03	1.7E+04	1.9E+04	NA	1.7E+02	2.9E+04	4.5E+03	6.7E+01	8.3E+02	NA	NA
$U_{235/236}$	2.3E−01	1.5E+00	3.5E−02	4.1E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	3.0E+00	1.9E+01	4.5E−01	5.4E+00	9.2E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	3.4E+04	5.2E+03	7.8E+01	9.7E+02	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.4E−11	2.9E−10	2.4E−10	2.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.5E−12	2.8E−11	1.3E−11	4.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E−11	1.6E−09	4.4E−10	3.2E−09	NA	NA	NA	NA	NA	NA	9.3E−05	3.3E−04	4.6E−05	3.4E−04	NA	2.7E−07
chromium vi	6.2E−11	7.0E−10	1.2E−09	1.3E−09	NA	NA	NA	NA	NA	NA	2.0E−03	6.0E−04	3.2E−04	3.5E−04	NA	1.2E−05
nickel	7.1E−11	4.1E−09	4.0E−09	2.7E−09	NA	NA	NA	NA	NA	NA	1.8E−03	3.0E−03	1.3E−03	8.6E−04	NA	5.1E−07
benzene	2.2E−17	2.5E−16	1.0E−19	1.3E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	3.0E−14	1.5E−13	2.7E−14	6.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.2E−14	2.5E−13	2.7E−15	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.3E−16	1.1E−15	2.4E−19	3.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E−14	1.4E−13	2.6E−18	5.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	1.0E−14	6.5E−14	4.3E−16	5.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	4.3E−16	3.6E−15	1.7E−19	2.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E−08	8.8E−08	6.4E−10	8.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.0E−08	3.0E−07	2.4E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.0E−13	6.9E−13	8.8E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.2E−13	7.6E−13	2.6E−12	3.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.2E−13	7.5E−13	2.7E−12	3.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E−13	7.2E−13	1.5E−11	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	9.7E−14	6.6E−13	8.6E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.8E−14	2.4E−13	4.7E−12	5.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	7.8E−14	5.0E−13	5.2E−12	6.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.9E−13	4.4E−12	2.6E−11	3.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	2.7E−15	2.7E−14	3.0E−12	3.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	3.8E−16	6.5E−15	9.1E−14	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	3.6E−16	2.5E−15	3.7E−15	4.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.1E−17	3.9E−16	3.6E−16	4.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E−16	7.0E−16	6.9E−17	8.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	9.1E−18	5.4E−17	4.1E−14	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.6E−18	3.3E−17	3.8E−14	5.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10a
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.7E−12	6.6E−11	4.7E−16	6.0E−16	3.6E−03	3.0E−08	3.7E−08	1.0E−06	3.3E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	6.5E−08	4.1E−07	NA	NA	NA	NA	NA	4.6E−02	1.5E−02	NA	1.5E−01	2.2E−02	NA	NA	NA	4.2E−04
antimony	1.1E−10	2.3E−09	1.6E−09	6.6E−10	3.1E−05	3.1E−05	1.3E−05	7.2E−06	2.3E−06	NA	NA	NA	NA	NA	NA	NA
arsenic	7.1E−11	6.2E−10	5.0E−10	6.0E−11	NA	NA	NA	NA	NA	NA	7.6E−04	1.7E−04	6.7E−05	8.1E−06	NA	2.2E−06
barium	9.1E−10	2.0E−08	3.4E−09	3.1E−08	1.3E−03	3.0E−04	2.8E−03	5.9E−04	1.9E−04	NA	4.4E−02	2.7E−02	2.2E−03	2.1E−02	NA	1.3E−04
beryllium	7.8E−12	6.2E−11	2.9E−11	1.1E−13	7.5E−07	1.4E−06	5.2E−09	3.5E−06	1.1E−06	NA	3.2E−04	6.3E−05	1.1E−05	3.9E−08	NA	9.1E−07
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.2E−11	3.8E−09	1.1E−09	7.9E−09	1.0E−04	3.0E−05	2.2E−04	4.7E−06	1.5E−06	NA	3.5E−03	1.2E−02	1.7E−03	1.3E−02	NA	1.0E−05
chromium vi	1.4E−10	1.6E−09	2.7E−09	3.0E−09	3.8E−05	1.2E−04	1.3E−04	5.8E−05	1.9E−05	NA	2.1E−01	6.3E−02	3.3E−02	3.7E−02	NA	1.2E−03
cobalt	7.1E−11	8.5E−10	5.8E−09	2.3E−09	5.4E−05	6.6E−04	2.7E−04	5.3E−05	1.7E−05	NA	8.4E−03	2.6E−03	7.5E−03	3.0E−03	NA	9.6E−06
copper	3.0E−10	2.1E−08	4.6E−08	2.8E−08	1.1E−03	2.5E−03	1.5E−03	2.9E−05	9.4E−07	NA	2.0E−02	4.0E−02	4.5E−02	2.7E−02	NA	5.7E−05
lead	5.1E−09	8.8E−08	1.6E−08	5.3E−08	1.5E−04	3.8E−05	1.3E−04	1.1E−04	3.6E−05	NA	7.2E−03	3.4E−03	2.8E−04	9.3E−04	NA	8.3E−08
magnesium	2.4E−07	2.7E−06	2.4E−06	7.8E−06	1.8E+00	2.4E+00	7.7E+00	2.3E−02	7.3E−03	NA	2.2E+01	6.7E+00	3.4E+00	1.1E+01	NA	6.4E−02
manganese	7.1E−09	1.7E−07	4.0E−08	1.4E−07	7.9E−02	2.4E−02	8.2E−02	1.1E−02	3.5E−03	NA	3.4E−01	2.3E−01	2.7E−02	9.5E−02	NA	9.8E−04
mercury	2.8E−12	2.9E−11	2.3E−09	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	5.7E−11	9.8E−10	2.6E−09	2.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.6E−10	9.4E−09	9.1E−09	6.0E−09	5.1E−04	5.1E−04	3.4E−04	5.8E−05	9.3E−07	NA	1.1E−01	1.8E−01	7.8E−02	5.2E−02	NA	3.1E−05
selenium	4.1E−12	1.2E−10	3.3E−10	3.5E−10	4.9E−06	1.5E−05	1.6E−05	1.4E−06	4.3E−07	NA	1.5E−03	1.3E−03	1.4E−03	1.5E−03	NA	4.4E−06
silver	4.9E−11	2.0E−09	3.2E−09	8.4E−08	6.4E−05	1.1E−04	3.0E−03	4.4E−06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.2E−12	1.5E−11	2.6E−10	5.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.2E−08	7.9E−08	1.8E−09	2.2E−08	9.7E−05	1.3E−05	1.6E−04	1.7E−04	5.4E−05	NA	1.8E−04	2.7E−05	4.0E−07	5.0E−06	NA	5.1E−07
vanadium	1.7E−10	1.6E−09	1.2E−09	3.9E−11	4.2E−05	7.7E−05	2.5E−06	9.6E−05	3.1E−06	NA	9.9E−03	2.4E−03	5.6E−04	1.8E−05	NA	2.8E−05
zinc	1.2E−09	1.3E−06	3.1E−05	1.2E−05	1.4E−01	3.4E+00	1.3E+00	1.1E−03	3.4E−04	NA	3.2E−02	1.0E+00	1.2E+01	5.0E+00	NA	5.6E−05
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2E−04	4.6E−05	1.2E−11	2.6E−11	8.2E−04	1.3E−06
bis(2−ethylhexyl)phthalate	8.4E−14	4.1E−13	7.5E−14	1.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E−04	3.9E−05	1.0E−08	1.3E−08	5.1E−04	2.7E−05
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.0E−16	3.2E−15	7.3E−19	9.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.3E−06	8.5E−07	1.1E−06	3.0E−07	2.8E−06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−14	4.9E−13	9.5E−18	1.9E−17	1.3E−05	3.4E−10	6.9E−10	1.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.5E−06	1.1E−06	1.3E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.8E−06	2.6E−07	3.4E−07	1.5E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.3E−08	2.0E−07	1.4E−09	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2E−04	3.9E−05	2.9E−08	4.0E−08	8.2E−04	8.9E−05
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	9.7E−16	1.7E−14	2.4E−13	3.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.7E−16	1.2E−15	1.2E−16	1.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E−01	1.9E−02	NA	NA	NA	3.6E−04
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7E−03	7.0E−04	NA	NA	NA	1.3E−05
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−02	2.4E−03	NA	NA	NA	4.6E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.6E+00	9.9E−01	NA	NA	NA	1.9E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10b
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
NORTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.2E−12	1.7E−11	1.2E−16	1.6E−16	3.6E−03	3.0E−08	3.7E−08	1.0E−06	3.3E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	2.7E−08	1.7E−07	NA	NA	NA	NA	NA	2.9E−02	9.4E−03	NA	NA	NA	NA	NA	NA	NA
antimony	5.8E−11	1.2E−09	8.7E−10	3.5E−10	NA	NA	NA	NA	NA	NA	1.2E−03	6.9E−04	2.6E−04	1.0E−04	NA	3.5E−06
arsenic	2.9E−11	2.5E−10	2.0E−10	2.4E−11	NA	NA	NA	NA	NA	NA	4.3E−03	9.3E−04	3.8E−04	4.6E−05	NA	1.2E−05
barium	3.5E−10	7.7E−09	1.3E−09	1.2E−08	7.0E−04	1.6E−04	1.5E−03	3.2E−04	1.0E−04	NA	2.2E−02	1.4E−02	1.2E−03	1.1E−02	NA	6.5E−05
beryllium	2.9E−12	2.3E−11	1.1E−11	4.0E−14	4.0E−07	7.6E−07	2.7E−09	1.8E−06	5.8E−07	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.5E−11	1.8E−09	5.1E−10	3.7E−09	9.1E−05	2.7E−05	2.0E−04	4.2E−06	1.3E−06	NA	1.8E−04	6.3E−04	8.8E−05	6.4E−04	NA	5.1E−07
chromium vi	5.4E−11	6.2E−10	1.0E−09	1.1E−09	2.8E−05	8.5E−05	9.3E−05	4.2E−05	1.4E−05	NA	NA	NA	NA	NA	NA	NA
cobalt	3.0E−11	3.5E−10	2.4E−09	9.8E−10	4.1E−05	5.1E−04	2.0E−04	4.1E−05	1.3E−05	NA	NA	NA	NA	NA	NA	NA
copper	8.4E−11	5.8E−09	1.3E−08	7.8E−09	1.9E−03	4.4E−03	2.6E−03	5.1E−05	1.6E−06	NA	NA	NA	NA	NA	NA	NA
lead	4.9E−10	8.6E−09	1.6E−09	5.2E−09	9.0E−05	2.4E−05	7.9E−05	6.9E−05	2.2E−05	NA	9.0E−05	4.3E−05	3.5E−06	1.2E−05	NA	1.0E−09
magnesium	8.4E−08	9.6E−07	8.6E−07	2.7E−06	3.2E+00	4.2E+00	1.3E+01	4.0E−02	1.3E−02	NA	1.6E+00	4.8E−01	2.5E−01	8.0E−01	NA	4.6E−03
manganese	2.7E−09	6.4E−08	1.5E−08	5.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	7.8E−13	8.1E−12	6.5E−10	4.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.3E−11	3.9E−10	1.0E−09	1.0E−09	2.5E−04	9.4E−04	9.4E−04	2.9E−05	9.2E−06	NA	1.2E−03	5.8E−04	8.0E−04	8.0E−04	NA	3.5E−06
nickel	7.1E−11	4.1E−09	4.0E−09	2.7E−09	4.6E−04	4.7E−04	3.1E−04	5.3E−05	8.5E−07	NA	NA	NA	NA	NA	NA	NA
selenium	2.7E−12	7.9E−11	2.1E−10	2.3E−10	2.9E−06	8.6E−06	9.2E−06	7.9E−07	2.5E−07	NA	NA	NA	NA	NA	NA	NA
silver	2.5E−11	1.0E−09	1.6E−09	4.3E−08	NA	NA	NA	NA	NA	NA	7.9E−04	9.5E−04	7.5E−04	2.0E−02	NA	1.4E−06
thallium	1.2E−12	7.9E−12	1.4E−10	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.2E−09	2.1E−08	4.8E−10	5.8E−09	1.8E−05	2.5E−06	2.9E−05	3.2E−05	1.0E−05	NA	4.3E−05	6.6E−06	9.8E−08	1.2E−06	NA	1.2E−07
vanadium	7.1E−11	6.6E−10	5.2E−10	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.1E−10	7.8E−07	1.9E−05	7.5E−06	2.6E−02	6.2E−01	2.5E−01	2.0E−04	6.3E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5E−05	1.2E−05	2.9E−12	6.6E−12	2.1E−04	3.1E−07
bis(2−ethylhexyl)phthalate	4.5E−14	2.2E−13	4.0E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−16	2.3E−15	5.1E−19	7.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E−14	1.8E−13	3.5E−18	7.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.3E−07	1.1E−06	8.0E−09	1.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.1E−16	1.2E−14	1.7E−13	2.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E−16	7.9E−16	7.8E−17	1.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8E−01	1.0E−01	NA	NA	NA	2.0E−03
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E−03	4.1E−04	NA	NA	NA	7.9E−06
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E−02	3.8E−03	NA	NA	NA	7.4E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7E−01	7.0E−02	NA	NA	NA	1.3E−03

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10c
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
SOUTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.2E−12	1.7E−11	1.2E−16	1.6E−16	NA	NA	NA	NA	NA	NA	1.5E−03	5.7E−04	2.3E−09	3.0E−09	NA	2.0E−05
aluminum	2.1E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	3.0E−01	4.4E−02	NA	NA	NA	8.5E−04
antimony	3.4E−11	7.0E−10	5.1E−10	2.1E−10	NA	NA	NA	NA	NA	NA	8.5E−04	4.8E−04	1.8E−04	7.2E−05	NA	2.4E−06
arsenic	2.2E−11	1.9E−10	1.5E−10	1.8E−11	NA	NA	NA	NA	NA	NA	8.5E−03	1.9E−03	7.5E−04	9.1E−05	NA	2.4E−05
barium	2.9E−10	6.4E−09	1.1E−09	1.0E−08	NA	NA	NA	NA	NA	NA	8.4E−03	5.2E−03	4.4E−04	4.1E−03	NA	2.4E−05
beryllium	2.5E−12	2.0E−11	9.6E−12	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.4E−12	1.0E−09	2.9E−10	2.1E−09	NA	NA	NA	NA	NA	NA	7.8E−04	2.8E−03	3.9E−04	2.8E−03	NA	2.2E−06
chromium vi	4.0E−11	4.5E−10	7.6E−10	8.3E−10	NA	NA	NA	NA	NA	NA	3.0E−02	9.1E−03	4.8E−03	5.3E−03	NA	1.7E−04
cobalt	2.1E−11	2.5E−10	1.8E−09	7.0E−10	NA	NA	NA	NA	NA	NA	1.2E−03	3.7E−04	1.1E−03	4.3E−04	NA	1.4E−06
copper	7.8E−11	5.4E−09	1.2E−08	7.2E−09	NA	NA	NA	NA	NA	NA	1.7E−03	3.3E−03	3.7E−03	2.2E−03	NA	4.8E−06
lead	1.3E−09	2.3E−08	4.1E−09	1.4E−08	NA	NA	NA	NA	NA	NA	6.6E−04	3.2E−04	2.6E−05	8.6E−05	NA	7.6E−09
magnesium	6.2E−08	7.0E−07	6.3E−07	2.0E−06	NA	NA	NA	NA	NA	NA	1.6E+00	4.7E−01	2.4E−01	7.8E−01	NA	4.5E−03
manganese	2.1E−09	5.2E−08	1.2E−08	4.2E−08	NA	NA	NA	NA	NA	NA	9.3E−02	6.3E−02	7.5E−03	2.6E−02	NA	2.7E−04
mercury	7.8E−13	8.1E−12	6.5E−10	4.7E−12	NA	NA	NA	NA	NA	NA	4.1E−05	1.1E−05	5.1E−04	3.7E−06	NA	1.2E−07
molybdenum	1.5E−11	2.6E−10	6.7E−10	6.7E−10	NA	NA	NA	NA	NA	NA	9.6E−04	4.5E−04	6.2E−04	6.2E−04	NA	2.8E−06
nickel	4.5E−11	2.6E−09	2.5E−09	1.7E−09	NA	NA	NA	NA	NA	NA	8.0E−04	1.3E−03	5.8E−04	3.8E−04	NA	2.3E−07
selenium	1.9E−12	5.6E−11	1.5E−10	1.6E−10	NA	NA	NA	NA	NA	NA	5.5E−05	4.5E−05	4.8E−05	5.2E−05	NA	1.6E−07
silver	1.6E−11	6.5E−10	1.0E−09	2.7E−08	NA	NA	NA	NA	NA	NA	5.5E−04	6.6E−04	5.1E−04	1.4E−02	NA	9.5E−07
thallium	5.8E−13	3.9E−12	6.8E−11	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.9E−09	2.5E−08	5.8E−10	7.0E−09	1.7E−05	2.3E−06	2.7E−05	3.0E−05	9.5E−06	NA	9.1E−03	1.4E−03	2.1E−05	2.6E−04	NA	2.6E−05
vanadium	5.1E−11	4.8E−10	3.7E−10	1.2E−11	NA	NA	NA	NA	NA	NA	8.1E−04	1.9E−04	4.6E−05	1.5E−06	NA	2.3E−06
zinc	2.7E−10	3.0E−07	7.2E−06	2.9E−06	NA	NA	NA	NA	NA	NA	2.7E−03	8.7E−02	1.0E+00	4.2E−01	NA	4.6E−06
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E−04	2.9E−05	7.4E−12	1.6E−11	5.1E−04	7.8E−07
bis(2−ethylhexyl)phthalate	2.3E−14	1.1E−13	2.1E−14	4.7E−14	NA	NA	NA	NA	NA	NA	2.7E−05	3.2E−06	1.9E−07	4.8E−07	NA	6.6E−05
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.7E−17	8.0E−16	1.8E−19	2.4E−19	NA	NA	NA	NA	NA	NA	7.9E−04	1.6E−04	2.0E−08	2.8E−08	3.0E−03	7.7E−05
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−03	6.0E−04	3.0E−08	3.9E−08	6.0E−03	1.3E−04
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0E−03	5.4E−04	9.7E−08	1.4E−07	1.1E−02	4.5E−04
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E−04	2.4E−05	5.4E−09	7.1E−09	4.1E−04	5.5E−06
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E−14	9.1E−14	1.8E−18	3.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E−09	8.3E−08	6.0E−10	7.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E−04	8.7E−05	4.4E−08	5.7E−08	1.0E−03	5.6E−05
4,4−ddt	3.0E−16	5.3E−15	7.4E−14	9.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.1E−17	6.2E−16	6.1E−17	7.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.8E−03	1.3E−03	NA	NA	NA	2.5E−05
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−01	2.4E−02	NA	NA	NA	4.6E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E−02	1.8E−03	NA	NA	NA	3.6E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8E+00	4.2E−01	NA	NA	NA	8.0E−03

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10d
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	7.8E−13	1.1E−11	7.8E−17	9.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E−08	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	5.0E−11	1.0E−09	7.5E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	2.8E−11	2.4E−10	1.9E−10	2.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.4E−10	5.3E−09	8.9E−10	8.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E−12	1.7E−11	8.1E−12	2.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.0E−11	1.3E−09	3.5E−10	2.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.9E−11	4.4E−10	7.5E−10	8.1E−10	NA	NA	NA	NA	NA	NA	5.5E−04	1.6E−04	8.6E−05	9.6E−05	NA	3.2E−06
cobalt	2.1E−11	2.5E−10	1.8E−09	7.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.6E−11	3.9E−09	8.6E−09	5.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	3.5E−10	6.1E−09	1.1E−09	3.7E−09	NA	NA	NA	NA	NA	NA	6.0E−04	2.9E−04	2.3E−05	7.8E−05	NA	6.9E−09
magnesium	5.7E−08	6.5E−07	5.8E−07	1.9E−06	NA	NA	NA	NA	NA	NA	1.0E+00	3.1E−01	1.6E−01	5.1E−01	NA	2.9E−03
manganese	2.1E−09	5.2E−08	1.2E−08	4.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	5.4E−13	5.6E−12	4.5E−10	3.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.3E−11	2.2E−10	5.8E−10	5.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	5.2E−11	3.0E−09	2.9E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.7E−12	5.1E−11	1.4E−10	1.5E−10	NA	NA	NA	NA	NA	NA	3.3E−05	2.7E−05	2.9E−05	3.1E−05	NA	9.5E−08
silver	1.8E−11	7.6E−10	1.2E−09	3.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	7.1E−13	4.8E−12	8.3E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	2.4E−09	1.5E−08	3.6E−10	4.3E−09	1.6E−05	2.1E−06	2.5E−05	2.7E−05	8.7E−06	NA	1.8E−04	2.8E−05	4.1E−07	5.1E−06	NA	5.2E−07
vanadium	4.9E−11	4.5E−10	3.5E−10	1.1E−11	NA	NA	NA	NA	NA	NA	1.0E−04	2.5E−05	5.9E−06	1.9E−07	NA	3.0E−07
zinc	2.7E−10	3.0E−07	7.2E−06	2.9E−06	NA	NA	NA	NA	NA	NA	5.1E−03	1.6E−01	2.0E+00	7.8E−01	NA	8.7E−06
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.1E−14	1.0E−13	1.8E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.4E−17	6.9E−16	1.5E−19	2.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−14	6.4E−14	1.2E−18	2.5E−18	NA	NA	NA	NA	NA	NA	2.7E−05	3.9E−06	2.3E−11	5.2E−11	1.0E−04	1.1E−06
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E−08	4.0E−07	2.9E−09	3.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.5E−16	4.3E−15	6.0E−14	7.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E−17	3.8E−16	3.7E−17	4.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E−01	1.6E−02	NA	NA	NA	3.1E−04
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E−01	1.8E−02	NA	NA	NA	3.5E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E−02	2.2E−03	NA	NA	NA	4.2E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.8E+00	5.7E−01	NA	NA	NA	1.1E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10e
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.4E−12	3.4E−11	2.4E−16	3.0E−16	3.7E−03	3.0E−08	3.8E−08	1.1E−06	3.4E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	4.3E−08	2.7E−07	NA	NA	NA	NA	NA	2.2E−02	7.1E−03	NA	NA	NA	NA	NA	NA	NA
antimony	6.5E−11	1.3E−09	9.7E−10	3.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	4.4E−11	3.8E−10	3.1E−10	3.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	6.4E−10	1.4E−08	2.4E−09	2.2E−08	6.4E−04	1.5E−04	1.4E−03	2.9E−04	9.4E−05	NA	NA	NA	NA	NA	NA	NA
beryllium	5.6E−12	4.4E−11	2.1E−11	7.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.1E−11	2.5E−09	7.1E−10	5.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.7E−11	1.1E−09	1.9E−09	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	4.7E−11	5.5E−10	3.8E−09	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.1E−10	1.5E−08	3.3E−08	2.0E−08	1.5E−03	3.5E−03	2.1E−03	4.1E−05	1.3E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.5E−09	2.6E−08	4.7E−09	1.6E−08	9.2E−05	2.4E−05	8.1E−05	7.0E−05	2.2E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	1.2E−07	1.4E−06	1.3E−06	4.0E−06	6.0E−01	7.9E−01	2.5E+00	7.5E−03	2.4E−03	NA	NA	NA	NA	NA	NA	NA
manganese	4.4E−09	1.1E−07	2.5E−08	8.6E−08	2.7E−02	8.1E−03	2.8E−02	3.7E−03	1.2E−03	NA	NA	NA	NA	NA	NA	NA
mercury	1.7E−12	1.8E−11	1.5E−09	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.2E−11	7.3E−10	1.9E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E−10	6.4E−09	6.2E−09	4.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	4.0E−12	1.1E−10	3.1E−10	3.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	3.6E−11	1.5E−09	2.3E−09	6.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.7E−12	1.2E−11	2.0E−10	4.1E−11	4.6E−08	9.2E−06	1.8E−06	7.9E−07	2.5E−07	NA	NA	NA	NA	NA	NA	NA
uranium−total	6.2E−09	3.9E−08	9.2E−10	1.1E−08	2.9E−05	3.8E−06	4.6E−05	5.0E−05	1.6E−05	NA	NA	NA	NA	NA	NA	NA
vanadium	1.2E−10	1.1E−09	8.5E−10	2.7E−11	2.9E−05	5.3E−05	1.7E−06	6.6E−05	2.1E−06	NA	NA	NA	NA	NA	NA	NA
zinc	1.2E−09	1.3E−06	3.1E−05	1.2E−05	3.7E−02	8.9E−01	3.6E−01	2.8E−04	9.1E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	9.1E−14	4.4E−13	8.1E−14	1.8E−13	7.0E−07	2.9E−07	6.6E−07	1.8E−07	2.4E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.2E−16	4.3E−15	9.7E−19	1.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	7.4E−06	2.8E−06	3.5E−06	9.6E−07	9.2E−06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E−13	6.1E−13	1.2E−17	2.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.9E−06	2.7E−06	3.4E−06	6.9E−07	6.6E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	8.5E−06	1.2E−06	1.6E−06	6.7E−07	6.4E−06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.7E−08	3.1E−07	2.3E−09	2.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.2E−15	2.1E−14	3.0E−13	3.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E−16	1.1E−15	1.1E−16	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–10f
INTAKES FOR TOXICANTS FOR RME OFF–PROPERTY FARMER
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.4E–12	3.4E–11	2.4E–16	3.0E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	3.2E–08	2.0E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	5.1E–11	1.0E–09	7.6E–10	3.0E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	3.4E–11	2.9E–10	2.4E–10	2.8E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	4.2E–10	9.3E–09	1.6E–09	1.5E–08	NA	NA	NA	NA	NA	NA	2.5E–03	1.5E–03	1.3E–04	1.2E–03	NA	7.1E–06
beryllium	3.5E–12	2.8E–11	1.3E–11	4.8E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E–11	1.6E–09	4.4E–10	3.2E–09	NA	NA	NA	NA	NA	NA	9.3E–05	3.3E–04	4.6E–05	3.4E–04	NA	2.7E–07
chromium vi	6.2E–11	7.0E–10	1.2E–09	1.3E–09	NA	NA	NA	NA	NA	NA	2.0E–03	6.0E–04	3.2E–04	3.5E–04	NA	1.2E–05
cobalt	3.2E–11	3.8E–10	2.7E–09	1.1E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.6E–10	1.1E–08	2.4E–08	1.4E–08	NA	NA	NA	NA	NA	NA	1.9E–04	3.9E–04	4.4E–04	2.6E–04	NA	5.6E–07
lead	3.8E–09	6.6E–08	1.2E–08	3.9E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	1.0E–07	1.2E–06	1.1E–06	3.4E–06	NA	NA	NA	NA	NA	NA	8.6E–01	2.6E–01	1.3E–01	4.3E–01	NA	2.5E–03
manganese	3.2E–09	7.7E–08	1.8E–08	6.2E–08	NA	NA	NA	NA	NA	NA	8.1E–03	5.5E–03	6.5E–04	2.3E–03	NA	2.3E–05
mercury	1.1E–12	1.1E–11	9.2E–10	6.6E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.7E–11	4.6E–10	1.2E–09	1.2E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	7.1E–11	4.1E–09	4.0E–09	2.7E–09	NA	NA	NA	NA	NA	NA	1.8E–03	3.0E–03	1.3E–03	8.6E–04	NA	5.1E–07
selenium	2.4E–12	6.9E–11	1.9E–10	2.0E–10	NA	NA	NA	NA	NA	NA	7.7E–05	6.3E–05	6.8E–05	7.3E–05	NA	2.2E–07
silver	2.6E–11	1.1E–09	1.7E–09	4.5E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	9.1E–13	6.1E–12	1.1E–10	2.1E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	4.8E–09	3.1E–08	7.1E–10	8.6E–09	1.6E–05	2.1E–06	2.5E–05	2.7E–05	8.7E–06	NA	2.5E–05	3.8E–06	5.6E–08	6.9E–07	NA	7.1E–08
vanadium	7.8E–11	7.3E–10	5.7E–10	1.8E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	4.0E–10	4.3E–07	1.0E–05	4.2E–06	NA	NA	NA	NA	NA	NA	1.4E–04	4.4E–03	5.3E–02	2.1E–02	NA	2.4E–07
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	3.0E–14	1.5E–13	2.7E–14	6.0E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.3E–16	1.1E–15	2.4E–19	3.2E–19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E–14	1.4E–13	2.6E–18	5.4E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E–08	8.8E–08	6.4E–10	8.2E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	3.8E–16	6.5E–15	9.1E–14	1.2E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E–16	7.0E–16	6.9E–17	8.9E–17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.2E–02	9.3E–03	NA	NA	NA	1.8E–04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4E–03	6.5E–04	NA	NA	NA	1.3E–05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–11a
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	1.1E−04	3.6E−03	5.7E−03	4.7E−02	1.1E+03	4.1E+03	3.4E+04	3.2E+02	NA	2.3E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.3E−05	7.0E−04	5.7E−06	1.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	7.1E−04	1.9E−02	6.1E−07	2.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.4E−04	3.6E−03	3.0E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	5.3E−02	1.6E+00	8.0E−02	3.4E+00	NA	NA	NA	NA	NA	NA	6.9E+03	2.2E+03	4.6E+01	2.0E+03	NA	NA
Ra_{228+1d}	2.3E−02	6.0E−01	7.4E−03	3.2E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	3.8E−05	9.7E−04	8.6E−05	6.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.6E−04	1.9E−02	1.5E−03	1.8E−01	2.9E+04	5.6E+03	6.5E+05	1.0E+03	NA	7.6E+00	NA	NA	NA	NA	NA	NA
Tc_{99}	7.8E−03	2.2E−01	1.6E−01	4.4E+00	2.5E+05	8.6E+05	2.4E+07	1.5E+03	NA	1.1E+01	NA	NA	NA	NA	NA	NA
Th_{228+7d}	3.2E−03	8.1E−02	2.2E−05	4.4E−04	6.8E+00	3.3E−01	6.6E+00	7.1E+02	NA	5.3E+00	NA	NA	NA	NA	NA	NA
Th_{230}	2.9E−01	7.8E+00	8.8E−03	1.7E−01	2.2E+01	1.1E+00	2.1E+01	2.3E+03	NA	1.7E+01	5.0E+03	1.3E+03	3.1E−01	6.2E+00	NA	NA
Th_{232}	8.2E−03	2.2E−01	2.5E−04	4.8E−03	6.5E+00	3.2E−01	6.2E+00	6.7E+02	NA	5.0E+00	NA	NA	NA	NA	NA	NA
U_{234}	1.7E−01	4.5E+00	4.7E−02	3.3E+00	2.8E+03	1.6E+02	1.1E+04	6.1E+03	NA	4.5E+01	5.3E+03	1.4E+03	9.2E+00	6.7E+02	NA	NA
$U_{235/236}$	1.1E−02	2.9E−01	3.0E−03	2.1E−01	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.5E−01	3.9E+00	4.0E−02	2.8E+00	4.0E+03	2.4E+02	1.7E+04	8.9E+03	NA	6.6E+01	5.0E+03	1.3E+03	8.8E+00	6.4E+02	NA	NA
Rn_{222+4d}	1.0E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.0E−12	2.1E−10	7.7E−11	5.4E−11	NA	NA	NA	NA	NA	NA	1.5E−04	5.7E−05	1.0E−05	7.3E−06	NA	3.0E−07
beryllium	6.6E−13	2.1E−11	4.6E−12	9.6E−14	2.6E−07	2.2E−07	4.7E−09	1.5E−06	1.5E−07	NA	6.4E−05	2.2E−05	1.7E−06	3.6E−08	NA	1.3E−07
cadmium	2.7E−12	1.3E−09	1.7E−10	7.2E−09	3.5E−05	4.6E−06	2.0E−04	2.1E−06	2.1E−07	NA	7.0E−04	4.3E−03	2.7E−04	1.1E−02	NA	1.4E−06
chromium vi	1.2E−11	5.6E−10	4.2E−10	2.7E−09	1.3E−05	1.8E−05	1.2E−04	2.6E−05	2.6E−06	NA	4.2E−02	2.2E−02	5.2E−03	3.3E−02	NA	1.7E−04
nickel	1.4E−11	3.3E−09	1.4E−09	5.5E−09	1.8E−04	7.9E−05	3.1E−04	2.6E−05	1.3E−07	NA	2.2E−02	6.3E−02	1.2E−02	4.7E−02	NA	4.3E−06
benzene	6.0E−18	2.8E−16	5.0E−20	3.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	7.1E−15	1.4E−13	1.2E−14	1.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.3E−15	3.8E−13	1.9E−15	1.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.3E−17	1.1E−15	1.1E−19	9.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E−15	1.7E−13	1.5E−18	1.8E−17	4.4E−06	5.3E−11	6.3E−10	6.6E−09	2.0E−08	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.0E−15	5.1E−14	1.5E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.2E−16	4.1E−15	8.8E−20	7.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.0E−09	6.9E−08	2.2E−10	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.0E−09	2.4E−07	8.6E−11	6.4E−10	NA	NA	NA	NA	NA	NA	4.9E−05	3.4E−05	6.7E−09	5.1E−08	3.7E−04	6.5E−06
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.7E−14	7.5E−13	4.2E−13	3.2E−12	1.5E−07	1.6E−07	1.2E−06	6.2E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.1E−14	8.3E−13	1.3E−12	9.6E−12	6.7E−08	2.5E−07	1.9E−06	5.2E−08	1.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.1E−14	8.3E−13	1.3E−12	1.0E−11	7.7E−08	3.0E−07	2.3E−06	6.0E−08	1.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.1E−14	8.4E−13	7.7E−12	5.7E−11	3.4E−08	1.3E−06	9.4E−06	7.0E−08	2.1E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	2.5E−14	7.0E−13	4.1E−13	3.0E−12	1.7E−07	1.8E−07	1.4E−06	7.2E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E−14	2.7E−13	2.4E−12	1.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.0E−14	5.3E−13	2.5E−12	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.3E−14	4.2E−12	1.1E−11	8.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	7.1E−16	3.0E−14	1.5E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	8.2E−17	5.9E−15	3.7E−14	2.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	5.0E−17	1.4E−15	9.4E−16	7.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	9.9E−18	2.6E−16	1.1E−16	8.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E−17	4.1E−16	1.8E−17	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.9E−18	4.5E−17	1.6E−14	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E−18	3.7E−17	1.9E−14	1.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI–11b
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.8E−05	1.3E−03	2.0E−03	1.6E−02	1.2E+03	4.7E+03	3.8E+04	3.6E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.2E−05	3.6E−04	2.9E−06	6.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.7E−04	7.1E−03	2.3E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.7E−05	1.5E−03	1.2E−07	5.8E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+2d}	1.8E−02	5.6E−01	2.8E−02	1.2E+00	NA	NA	NA	NA	NA	NA	3.2E+03	1.0E+03	2.1E+01	9.0E+02	NA	NA
Ra_{228+1d}	2.3E−03	6.0E−02	7.4E−04	3.2E−02	NA	NA	NA	NA	NA	NA	8.2E+03	2.1E+03	1.7E+01	7.6E+02	NA	NA
Ru_{106}	3.8E−05	9.7E−04	8.6E−05	6.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.4E−05	3.5E−03	2.8E−04	3.3E−02	1.2E+04	2.3E+03	2.7E+05	4.2E+02	NA	3.1E+00	NA	NA	NA	NA	NA	NA
Tc_{99}	5.5E−04	1.6E−02	1.1E−02	3.1E−01	9.3E+04	3.2E+05	8.8E+06	5.5E+02	NA	4.1E+00	NA	NA	NA	NA	NA	NA
Th_{228+2d}	7.8E−04	2.0E−02	5.5E−06	1.1E−04	4.9E+00	2.4E−01	4.7E+00	5.1E+02	NA	3.8E+00	3.1E+03	8.0E+02	1.4E−01	3.0E+00	NA	NA
Th_{230}	1.7E−02	4.5E−01	5.1E−04	1.0E−02	1.0E+01	5.0E−01	9.8E+00	1.1E+03	NA	7.9E+00	2.7E+03	7.2E+02	1.7E−01	3.4E+00	NA	NA
Th_{232}	1.2E−03	3.0E−02	3.5E−05	6.8E−04	NA	NA	NA	NA	NA	NA	1.0E+03	2.7E+02	6.2E−02	1.3E+00	NA	NA
U_{234}	3.2E−02	8.3E−01	8.6E−03	6.0E−01	7.3E+02	4.3E+01	3.0E+03	1.6E+03	NA	1.2E+01	7.1E+03	1.9E+03	1.3E+01	9.1E+02	NA	NA
$U_{235/236}$	2.7E−03	7.2E−02	7.4E−04	5.2E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	3.6E−02	9.4E−01	9.7E−03	6.8E−01	8.1E+02	4.8E+01	3.4E+03	1.8E+03	NA	1.3E+01	8.0E+03	2.1E+03	1.4E+01	1.0E+03	NA	NA
Rn_{222+4d}	4.9E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.5E−12	8.8E−11	3.1E−11	2.2E−11	NA	NA	NA	NA	NA	NA	8.5E−04	3.2E−04	5.8E−05	4.1E−05	NA	1.7E−06
beryllium	2.5E−13	8.0E−12	1.7E−12	3.6E−14	1.4E−07	1.2E−07	2.5E−09	8.1E−07	8.1E−08	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E−12	6.3E−10	7.9E−11	3.4E−09	3.2E−05	4.2E−06	1.8E−04	1.9E−06	1.9E−07	NA	3.6E−05	2.2E−04	1.4E−05	5.8E−04	NA	7.1E−08
chromium vi	4.6E−12	2.1E−10	1.6E−10	1.0E−09	9.6E−06	1.3E−05	8.4E−05	1.9E−05	1.9E−06	NA	NA	NA	NA	NA	NA	NA
nickel	6.0E−12	1.4E−09	6.2E−10	2.4E−09	1.6E−04	7.2E−05	2.8E−04	2.4E−05	1.2E−07	NA	NA	NA	NA	NA	NA	NA
benzene	4.9E−18	2.3E−16	4.1E−20	3.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	3.8E−15	7.6E−14	6.2E−15	8.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	9.3E−16	8.2E−14	4.0E−16	3.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E−17	8.0E−16	7.9E−20	6.3E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.6E−15	6.3E−14	5.4E−19	6.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.3E−15	5.9E−14	1.7E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.3E−17	3.1E−15	6.8E−20	5.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E−08	3.8E−07	1.2E−09	9.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.2E−08	1.3E−06	4.7E−10	3.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.3E−14	3.6E−13	2.0E−13	1.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.6E−14	4.2E−13	6.6E−13	4.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.6E−14	4.3E−13	7.0E−13	5.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E−14	4.3E−13	3.9E−12	2.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.4E−14	3.8E−13	2.2E−13	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.0E−15	1.3E−13	1.1E−12	8.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.0E−14	2.7E−13	1.3E−12	9.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.8E−14	1.8E−12	4.6E−12	3.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	6.0E−16	2.5E−14	1.2E−12	9.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	6.0E−17	4.3E−15	2.7E−14	2.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.6E−17	7.5E−16	4.9E−16	3.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	9.9E−18	2.6E−16	1.1E−16	8.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.9E−18	2.8E−16	1.2E−17	9.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.0E−18	4.9E−17	1.7E−14	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E−18	2.9E−17	1.5E−14	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–11c
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	2.9E−05	9.8E−04	1.6E−03	1.3E−02	8.6E+02	3.3E+03	2.7E+04	2.5E+02	NA	1.9E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.0E−05	3.1E−04	2.5E−06	5.4E−06	NA	NA	NA	NA	NA	NA	5.3E+03	1.7E+03	7.7E+00	1.7E+01	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	3.8E−04	9.8E−03	3.2E−07	1.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	5.0E−05	1.3E−03	1.1E−07	5.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+2d}	1.0E−02	3.1E−01	1.5E−02	6.5E−01	NA	NA	NA	NA	NA	NA	7.4E+03	2.3E+03	4.9E+01	2.1E+03	NA	NA
Ra_{228+1d}	4.4E−03	1.1E−01	1.4E−03	6.0E−02	8.5E+01	2.2E+01	9.6E+02	5.0E+02	NA	3.7E+00	9.2E+03	2.4E+03	2.0E+01	8.6E+02	NA	NA
Ru_{106}	2.0E−05	5.1E−04	4.5E−05	3.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.2E−05	3.4E−03	2.7E−04	3.2E−02	2.3E+04	4.3E+03	5.1E+05	8.0E+02	NA	5.9E+00	1.2E+04	5.4E+03	2.5E+02	2.9E+04	NA	NA
Tc_{99}	6.7E−04	1.9E−02	1.4E−02	3.8E−01	NA	NA	NA	NA	NA	NA	5.1E+04	1.5E+04	6.8E+03	1.9E+05	NA	NA
Th_{228+7d}	8.0E−04	2.0E−02	5.6E−06	1.1E−04	5.2E+00	2.5E−01	5.0E+00	5.5E+02	NA	4.1E+00	1.8E+04	4.6E+03	8.3E−01	1.7E+01	NA	NA
Th_{230}	4.2E−02	1.1E+00	1.3E−03	2.4E−02	8.1E+00	4.0E−01	7.7E+00	8.4E+02	NA	6.2E+00	4.5E+03	1.2E+03	2.8E−01	5.5E+00	NA	NA
Th_{232}	1.7E−03	4.4E−02	5.0E−05	9.8E−04	NA	NA	NA	NA	NA	NA	5.7E+03	1.5E+03	3.5E−01	7.0E+00	NA	NA
U_{234}	4.4E−02	1.2E+00	1.2E−02	8.5E−01	5.5E+02	3.3E+01	2.3E+03	1.2E+03	NA	9.0E+00	1.8E+05	4.7E+04	3.1E+02	2.3E+04	NA	NA
U_{235236}	3.4E−03	8.8E−02	9.2E−04	6.4E−02	NA	NA	NA	NA	NA	NA	3.9E+03	1.0E+03	6.9E+00	5.0E+02	NA	NA
U_{238+2d}	4.4E−02	1.2E+00	1.2E−02	8.5E−01	5.1E+02	3.0E+01	2.1E+03	1.1E+03	NA	8.4E+00	2.1E+05	5.5E+04	3.7E+02	2.7E+04	NA	NA
Rn_{222+4d}	1.3E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.9E−12	6.6E−11	2.4E−11	1.7E−11	NA	NA	NA	NA	NA	NA	1.7E−03	6.5E−04	1.2E−04	8.2E−05	NA	3.4E−06
beryllium	2.1E−13	7.0E−12	1.5E−12	3.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.1E−13	3.5E−10	4.5E−11	1.9E−09	NA	NA	NA	NA	NA	NA	1.6E−04	9.6E−04	6.0E−05	2.6E−03	NA	3.1E−07
chromium vi	3.3E−12	1.6E−10	1.2E−10	7.5E−10	NA	NA	NA	NA	NA	NA	6.1E−03	3.1E−03	7.4E−04	4.8E−03	NA	2.4E−05
nickel	3.8E−12	9.1E−10	3.9E−10	1.5E−09	NA	NA	NA	NA	NA	NA	1.6E−04	4.6E−04	8.9E−05	3.5E−04	NA	3.2E−08
benzene	1.4E−18	6.7E−17	1.2E−20	9.0E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.0E−15	4.0E−14	3.2E−15	4.2E−14	NA	NA	NA	NA	NA	NA	5.5E−06	1.1E−06	2.9E−08	4.4E−07	NA	9.2E−06
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	6.0E−16	5.3E−14	2.6E−16	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.2E−18	2.8E−16	2.8E−20	2.2E−19	NA	NA	NA	NA	NA	NA	1.6E−04	5.7E−05	3.1E−09	2.6E−08	1.2E−03	1.1E−05
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.0E−04	1.9E−04	1.5E−08	1.2E−07	4.5E−03	6.2E−05
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7E−03	9.0E−04	8.2E−08	6.3E−07	1.3E−02	5.9E−05
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−15	3.2E−14	2.7E−19	3.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	8.2E−16	2.1E−14	6.2E−17	5.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.8E−17	9.4E−16	2.0E−20	1.6E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.2E−10	2.9E−08	9.3E−11	6.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.6E−09	1.0E−07	3.5E−11	2.6E−10	NA	NA	NA	NA	NA	NA	1.9E−04	1.3E−04	2.5E−08	1.9E−07	1.4E−03	2.4E−05
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.6E−15	1.8E−13	1.0E−13	7.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	7.7E−15	2.0E−13	3.2E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.7E−15	2.0E−13	3.3E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.6E−15	1.8E−13	1.6E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	6.6E−15	1.8E−13	1.1E−13	7.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.3E−15	6.0E−14	5.2E−13	3.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.8E−15	1.3E−13	5.9E−13	4.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.3E−14	1.3E−12	3.3E−12	2.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.7E−16	7.2E−15	3.5E−13	2.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.6E−17	1.8E−15	1.1E−14	8.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.6E−17	7.3E−16	4.8E−16	3.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.7E−18	1.2E−16	5.1E−17	3.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.7E−18	2.1E−16	9.4E−18	7.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	7.1E−19	1.7E−17	5.9E−15	5.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.6E−19	8.7E−18	4.5E−15	3.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-11d
INTAKES FOR CARCINOGENS FOR OFF-PROPERTY CHILD
WESTERN FENCELINEINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	2.7E-05	9.1E-04	1.4E-03	1.2E-02	1.1E+03	4.1E+03	3.4E+04	3.2E+02	NA	2.3E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.4E-06	2.6E-04	2.1E-06	4.4E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.3E-04	6.0E-03	2.0E-07	9.2E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.6E-05	9.3E-04	7.8E-08	3.6E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+2d}	8.6E-03	2.6E-01	1.3E-02	5.6E-01	NA	NA	NA	NA	NA	NA	4.8E+03	1.5E+03	3.2E+01	1.4E+03	NA	NA
Ra_{228+1d}	1.7E-03	4.5E-02	5.5E-04	2.4E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	2.5E-05	6.4E-04	5.7E-05	4.2E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.0E-05	2.1E-03	1.7E-04	2.0E-02	4.3E+04	8.3E+03	9.7E+05	1.5E+03	NA	1.1E+01	NA	NA	NA	NA	NA	NA
Tc_{99}	3.8E-04	1.1E-02	7.7E-03	2.1E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+2d}	5.9E-04	1.5E-02	4.1E-06	8.2E-05	5.9E+00	2.9E-01	5.7E+00	6.2E+02	NA	4.6E+00	NA	NA	NA	NA	NA	NA
Th_{230}	1.3E-02	3.5E-01	4.0E-04	7.8E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232}	9.2E-04	2.4E-02	2.8E-05	5.4E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.3E-02	6.1E-01	6.3E-03	4.4E-01	5.0E+02	2.9E+01	2.1E+03	1.1E+03	NA	8.1E+00	4.4E+03	1.2E+03	7.7E+00	5.6E+02	NA	NA
$U_{235/236}$	2.0E-03	5.3E-02	5.4E-04	3.8E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	2.7E-02	7.2E-01	7.4E-03	5.2E-01	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	3.8E+03	1.0E+03	6.6E+00	4.8E+02	NA	NA
Rn_{222+4d}	2.8E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.4E-12	8.4E-11	3.0E-11	2.1E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.8E-13	5.9E-12	1.3E-12	2.6E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.8E-13	4.4E-10	5.5E-11	2.3E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.3E-12	1.5E-10	1.2E-10	7.4E-10	NA	NA	NA	NA	NA	NA	1.1E-04	5.7E-05	1.3E-05	8.7E-05	NA	4.4E-07
nickel	4.4E-12	1.0E-09	4.5E-10	1.8E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.4E-18	6.7E-17	1.2E-20	9.0E-20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.8E-15	3.5E-14	2.9E-15	3.8E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.8E-16	3.4E-14	1.7E-16	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-18	2.4E-16	2.4E-20	1.9E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.3E-16	2.2E-14	1.9E-19	2.3E-18	NA	NA	NA	NA	NA	NA	5.5E-06	1.4E-06	3.5E-12	4.7E-11	4.1E-05	1.5E-07
n-nitrosodiphenylamine	1.0E-15	2.7E-14	7.8E-17	6.4E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.7E-17	9.2E-16	2.0E-20	1.6E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.9E-09	1.4E-07	4.5E-10	3.3E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.7E-09	4.7E-07	1.7E-10	1.2E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.9E-15	1.3E-13	7.6E-14	5.6E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.5E-15	1.5E-13	2.3E-13	1.7E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.0E-15	1.6E-13	2.6E-13	1.9E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.5E-15	1.5E-13	1.3E-12	1.0E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.9E-15	1.4E-13	8.0E-14	5.9E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.8E-15	4.6E-14	4.0E-13	3.0E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.7E-15	9.8E-14	4.6E-13	3.4E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	7.7E-15	7.5E-13	1.9E-12	1.4E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	1.7E-16	7.2E-15	3.5E-13	2.6E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.1E-17	1.5E-15	9.3E-15	6.9E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.3E-17	3.7E-16	2.4E-16	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.5E-18	1.2E-16	5.0E-17	3.7E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.7E-18	1.3E-16	5.8E-18	4.3E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	8.2E-19	2.0E-17	6.9E-15	5.7E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.5E-19	8.5E-18	4.4E-15	3.7E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–11e
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways:		Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Contaminants of Concern	Inhalation															
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	6.9E−05	2.3E−03	3.7E−03	3.0E−02	1.2E+03	4.8E+03	3.9E+04	3.7E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.1E−05	6.3E−04	5.1E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	5.0E−04	1.3E−02	4.3E−07	2.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.8E−05	2.3E−03	1.9E−07	9.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	6.1E−02	1.9E+00	9.3E−02	3.9E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	7.6E−03	2.0E−01	2.4E−03	1.0E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	4.0E−05	1.0E−03	9.0E−05	6.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.0E−04	8.3E−03	6.7E−04	7.9E−02	6.2E+04	1.2E+04	1.4E+06	2.2E+03	NA	1.6E+01	NA	NA	NA	NA	NA	NA
Tc_{99}	1.4E−03	4.1E−02	2.9E−02	8.1E−01	1.3E+05	4.4E+05	1.2E+07	7.6E+02	NA	5.6E+00	NA	NA	NA	NA	NA	NA
Th_{228+3d}	1.4E−03	3.6E−02	9.7E−06	1.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	7.8E−02	2.1E+00	2.3E−03	4.5E−02	7.2E+00	3.5E−01	6.9E+00	7.4E+02	NA	5.5E+00	NA	NA	NA	NA	NA	NA
Th_{232}	2.9E−03	7.8E−02	8.8E−05	1.7E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.9E−02	1.8E+00	1.9E−02	1.3E+00	1.3E+03	7.6E+01	5.3E+03	2.8E+03	NA	2.1E+01	NA	NA	NA	NA	NA	NA
$U_{235/236}$	5.7E−03	1.5E−01	1.5E−03	1.1E−01	1.3E+02	7.9E+00	5.5E+02	2.9E+02	NA	2.2E+00	NA	NA	NA	NA	NA	NA
U_{238+2d}	7.3E−02	1.9E+00	2.0E−02	1.4E+00	1.3E+03	7.6E+01	5.4E+03	2.8E+03	NA	2.1E+01	NA	NA	NA	NA	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.7E−12	1.3E−10	4.8E−11	3.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	4.7E−13	1.5E−11	3.3E−12	6.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.8E−12	8.7E−10	1.1E−10	4.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.2E−12	3.8E−10	2.9E−10	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	9.3E−12	2.2E−09	9.5E−10	3.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	8.8E−18	4.1E−16	7.3E−20	5.5E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	7.7E−15	1.5E−13	1.2E−14	1.6E−13	2.4E−07	4.6E−08	6.0E−07	8.2E−08	3.3E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.8E−15	2.5E−13	1.2E−15	9.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.4E−17	1.5E−15	1.5E−19	1.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.8E−15	2.1E−13	1.8E−18	2.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.3E−15	5.9E−14	1.7E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.7E−16	5.7E−15	1.2E−19	9.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.1E−09	1.1E−07	3.5E−10	2.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.0E−09	3.7E−07	1.3E−10	9.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.0E−14	8.1E−13	4.6E−13	3.4E−12	2.8E−07	3.0E−07	2.3E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.6E−14	9.6E−13	1.5E−12	1.1E−11	1.6E−07	5.9E−07	4.4E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E−14	8.6E−13	1.4E−12	1.0E−11	1.5E−07	6.1E−07	4.5E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.6E−14	9.5E−13	8.8E−12	6.5E−11	8.0E−08	3.0E−06	2.2E−05	1.6E−07	4.9E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	2.5E−14	7.0E−13	4.1E−13	3.0E−12	4.1E−07	4.4E−07	3.3E−06	1.8E−07	5.3E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E−14	3.2E−13	2.7E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.1E−14	5.5E−13	2.6E−12	1.9E−11	5.1E−08	8.1E−07	6.0E−06	7.3E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.2E−14	5.1E−12	1.3E−11	9.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.0E−15	4.4E−14	2.2E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.0E−16	7.4E−15	4.6E−14	3.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	4.7E−17	1.3E−15	8.6E−16	6.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	9.9E−18	2.6E−16	1.1E−16	8.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.4E−17	3.8E−16	1.7E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.3E−18	5.6E−17	1.9E−14	1.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.2E−18	5.3E−17	2.8E−14	2.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–11f
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	3.4E−05	1.1E−03	1.8E−03	1.5E−02	1.0E+03	3.8E+03	3.1E+04	2.9E+02	NA	2.2E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−05	3.4E−04	2.7E−06	5.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	4.4E−04	1.1E−02	3.8E−07	1.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.9E−05	1.5E−03	1.3E−07	6.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+2d}	1.1E−02	3.5E−01	1.7E−02	7.3E−01	NA	NA	NA	NA	NA	NA	2.5E+03	8.0E+02	1.7E+01	7.2E+02	NA	NA
Ra_{228+1d}	4.6E−03	1.2E−01	1.5E−03	6.3E−02	8.5E+01	2.2E+01	9.6E+02	5.0E+02	NA	3.7E+00	NA	NA	NA	NA	NA	NA
Ru_{106}	2.1E−05	5.4E−04	4.8E−05	3.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.0E−04	4.2E−03	3.4E−04	4.0E−02	2.6E+04	5.0E+03	5.9E+05	9.2E+02	NA	6.9E+00	NA	NA	NA	NA	NA	NA
Tc_{99}	1.2E−03	3.4E−02	2.4E−02	6.6E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	9.2E−04	2.4E−02	6.5E−06	1.3E−04	5.2E+00	2.5E−01	5.0E+00	5.5E+02	NA	4.1E+00	1.3E+03	3.2E+02	5.8E−02	1.2E+00	NA	NA
Th_{230}	4.2E−02	1.1E+00	1.3E−03	2.4E−02	8.1E+00	4.0E−01	7.7E+00	8.4E+02	NA	6.2E+00	1.5E+03	3.9E+02	9.0E−02	1.8E+00	NA	NA
Th_{232}	2.0E−03	5.2E−02	5.9E−05	1.2E−03	NA	NA	NA	NA	NA	NA	6.3E+02	1.7E+02	3.9E−02	7.8E−01	NA	NA
U_{234}	5.5E−02	1.4E+00	1.5E−02	1.0E+00	8.0E+02	4.7E+01	3.3E+03	1.8E+03	NA	1.3E+01	1.3E+03	3.3E+02	2.2E+00	1.6E+02	NA	NA
$U_{235/236}$	4.2E−03	1.1E−01	1.1E−03	8.1E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	5.5E−02	1.4E+00	1.5E−02	1.0E+00	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	1.5E+03	3.9E+02	2.6E+00	1.9E+02	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.8E−12	1.0E−10	3.6E−11	2.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.0E−13	9.6E−12	2.0E−12	4.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.1E−12	5.4E−10	6.8E−11	2.9E−09	NA	NA	NA	NA	NA	NA	1.9E−05	1.1E−04	7.2E−06	3.1E−04	NA	3.7E−08
chromium vi	5.2E−12	2.4E−10	1.8E−10	1.2E−09	NA	NA	NA	NA	NA	NA	4.0E−04	2.1E−04	4.9E−05	3.2E−04	NA	1.6E−06
nickel	6.0E−12	1.4E−09	6.2E−10	2.4E−09	NA	NA	NA	NA	NA	NA	3.6E−04	1.0E−03	2.0E−04	7.8E−04	NA	7.1E−08
benzene	1.9E−18	8.7E−17	1.6E−20	1.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.5E−15	5.1E−14	4.1E−15	5.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	9.9E−16	8.6E−14	4.3E−16	3.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.1E−17	3.7E−16	3.7E−20	2.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E−15	4.8E−14	4.1E−19	4.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	8.8E−16	2.2E−14	6.6E−17	5.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	3.7E−17	1.2E−15	2.7E−20	2.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.8E−10	3.1E−08	9.9E−11	7.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.7E−09	1.0E−07	3.7E−11	2.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	8.8E−15	2.4E−13	1.4E−13	1.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.9E−15	2.6E−13	4.1E−13	3.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	9.9E−15	2.6E−13	4.2E−13	3.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.3E−15	2.5E−13	2.3E−12	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	8.2E−15	2.3E−13	1.3E−13	9.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.2E−15	8.3E−14	7.2E−13	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.6E−15	1.7E−13	8.1E−13	6.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.6E−14	1.5E−12	4.0E−12	3.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	2.2E−16	9.5E−15	4.6E−13	3.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	3.2E−17	2.3E−15	1.4E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	3.1E−17	8.7E−16	5.7E−16	4.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.2E−18	1.4E−16	5.6E−17	4.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.8E−18	2.4E−16	1.1E−17	8.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	7.7E−19	1.9E−17	6.4E−15	5.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.7E−19	1.1E−17	5.9E−15	5.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12a
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.7E−12	2.7E−10	8.6E−16	6.3E−15	1.5E−02	5.3E−08	3.9E−07	5.4E−06	5.4E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	6.4E−08	1.7E−06	NA	NA	NA	NA	NA	2.4E−01	2.4E−02	NA	3.4E−01	8.9E−02	NA	NA	NA	6.9E−04
antimony	1.1E−10	9.2E−09	3.0E−09	7.0E−09	1.3E−04	5.6E−05	1.3E−04	3.7E−05	3.7E−06	NA	NA	NA	NA	NA	NA	NA
arsenic	7.0E−11	2.5E−09	9.0E−10	6.3E−10	NA	NA	NA	NA	NA	NA	1.8E−03	6.7E−04	1.2E−04	8.5E−05	NA	3.5E−06
barium	8.9E−10	8.1E−08	6.1E−09	3.3E−07	5.2E−03	5.4E−04	2.9E−02	3.1E−03	3.1E−04	NA	1.0E−01	1.1E−01	4.1E−03	2.2E−01	NA	2.0E−04
beryllium	7.7E−12	2.5E−10	5.3E−11	1.1E−12	3.0E−06	2.6E−06	5.5E−08	1.8E−05	1.8E−06	NA	7.4E−04	2.5E−04	1.9E−05	4.1E−07	NA	1.5E−06
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.1E−11	1.6E−08	2.0E−09	8.3E−08	4.1E−04	5.4E−05	2.3E−03	2.4E−05	2.4E−06	NA	8.1E−03	5.0E−02	3.1E−03	1.3E−01	NA	1.6E−05
chromium vi	1.4E−10	6.6E−09	4.9E−09	3.2E−08	1.5E−04	2.1E−04	1.3E−03	3.0E−04	3.0E−05	NA	4.9E−01	2.6E−01	6.0E−02	3.9E−01	NA	2.0E−03
cobalt	7.0E−11	3.4E−09	1.1E−08	2.5E−08	2.2E−04	1.2E−03	2.8E−03	2.7E−04	2.7E−05	NA	1.9E−02	1.1E−02	1.3E−02	3.2E−02	NA	1.6E−05
copper	2.9E−10	8.4E−08	8.3E−08	2.9E−07	4.3E−03	4.5E−03	1.6E−02	1.5E−04	1.5E−06	NA	4.6E−02	1.6E−01	8.1E−02	2.8E−01	NA	9.3E−05
lead	5.0E−09	3.6E−07	2.9E−08	5.6E−07	5.9E−04	6.9E−05	1.4E−03	5.8E−04	5.8E−05	NA	1.7E−02	1.4E−02	5.0E−04	9.9E−03	NA	1.3E−07
magnesium	2.4E−07	1.1E−05	4.4E−06	8.2E−05	7.4E+00	4.3E+00	8.1E+01	1.2E−01	1.2E−02	NA	5.2E+01	2.7E+01	6.2E+00	1.2E+02	NA	1.0E−01
manganese	7.0E−09	7.0E−07	7.2E−08	1.5E−06	3.2E−01	4.2E−02	8.7E−01	5.6E−02	5.6E−03	NA	7.9E−01	9.3E−01	4.9E−02	1.0E+00	NA	1.6E−03
mercury	2.7E−12	1.2E−10	4.2E−09	1.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	5.6E−11	4.0E−09	4.6E−09	2.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.6E−10	3.8E−08	1.6E−08	6.4E−08	2.1E−03	9.2E−04	3.6E−03	3.0E−04	1.5E−06	NA	2.5E−01	7.3E−01	1.4E−01	5.5E−01	NA	5.0E−05
selenium	4.1E−12	4.9E−10	5.9E−10	3.7E−09	2.0E−05	2.7E−05	1.7E−04	7.0E−06	7.0E−07	NA	3.6E−03	5.1E−03	2.5E−03	1.6E−02	NA	7.2E−06
silver	4.8E−11	8.3E−09	5.7E−09	8.9E−07	2.6E−04	2.1E−04	3.2E−02	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.2E−12	6.0E−11	4.7E−10	5.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.2E−08	3.2E−07	3.3E−09	2.3E−07	3.9E−04	2.3E−05	1.6E−03	8.7E−04	8.7E−05	NA	4.2E−04	1.1E−04	7.3E−07	5.3E−05	NA	8.3E−07
vanadium	1.7E−10	6.4E−09	2.2E−09	4.2E−10	1.7E−04	1.4E−04	2.6E−05	5.0E−04	5.0E−06	NA	2.3E−02	9.6E−03	1.0E−03	1.9E−04	NA	4.6E−05
zinc	1.2E−09	5.2E−06	5.5E−05	1.3E−04	5.6E−01	6.0E+00	1.4E+01	5.5E−03	5.5E−04	NA	7.5E−02	4.2E+00	2.3E+01	5.3E+01	NA	9.1E−05
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1E−04	1.9E−04	2.1E−11	2.8E−10	3.8E−03	2.0E−06
bis(2−ethylhexyl)phthalate	8.3E−14	1.7E−12	1.4E−13	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2E−04	1.6E−04	1.8E−08	1.4E−07	2.4E−03	4.4E−05
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.9E−16	1.3E−14	1.3E−18	1.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	9.2E−06	1.5E−06	1.2E−05	1.5E−06	4.6E−06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E−14	2.0E−12	1.7E−17	2.0E−16	5.1E−05	6.2E−10	7.3E−09	7.7E−08	2.3E−07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	6.3E−06	1.9E−06	1.4E−05	1.4E−06	4.2E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	7.5E−06	4.8E−07	3.6E−06	7.5E−07	2.3E−06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.3E−08	8.0E−07	2.6E−09	1.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1E−04	1.6E−04	5.2E−08	4.2E−07	3.8E−03	1.4E−04
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	9.6E−16	6.9E−14	4.3E−13	3.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.7E−16	4.8E−15	2.1E−16	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9E−01	7.6E−02	NA	NA	NA	5.8E−04
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E−02	2.8E−03	NA	NA	NA	2.2E−05
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.8E−02	9.8E−03	NA	NA	NA	7.5E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E+01	4.0E+00	NA	NA	NA	3.1E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12b
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.2E−12	7.0E−11	2.2E−16	1.7E−15	1.5E−02	5.3E−08	3.9E−07	5.4E−06	5.4E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	2.7E−08	7.0E−07	NA	NA	NA	NA	NA	1.5E−01	1.5E−02	NA	NA	NA	NA	NA	NA	NA
antimony	5.8E−11	4.8E−09	1.6E−09	3.7E−09	NA	NA	NA	NA	NA	NA	2.8E−03	2.8E−03	4.6E−04	1.1E−03	NA	5.6E−06
arsenic	2.9E−11	1.0E−09	3.7E−10	2.6E−10	NA	NA	NA	NA	NA	NA	1.0E−02	3.8E−03	6.8E−04	4.8E−04	NA	2.0E−05
barium	3.5E−10	3.1E−08	2.3E−09	1.3E−07	2.8E−03	2.9E−04	1.6E−02	1.7E−03	1.7E−04	NA	5.2E−02	5.6E−02	2.1E−03	1.1E−01	NA	1.0E−04
beryllium	2.9E−12	9.4E−11	2.0E−11	4.2E−13	1.6E−06	1.4E−06	2.9E−08	9.5E−06	9.5E−07	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.5E−11	7.3E−09	9.2E−10	3.9E−08	3.7E−04	4.9E−05	2.1E−03	2.2E−05	2.2E−06	NA	4.2E−04	2.6E−03	1.6E−04	6.8E−03	NA	8.3E−07
chromium vi	5.4E−11	2.5E−09	1.9E−09	1.2E−08	1.1E−04	1.5E−04	9.8E−04	2.2E−04	2.2E−05	NA	NA	NA	NA	NA	NA	NA
cobalt	2.9E−11	1.4E−09	4.4E−09	1.0E−08	1.7E−04	9.2E−04	2.2E−03	2.1E−04	2.1E−05	NA	NA	NA	NA	NA	NA	NA
copper	8.3E−11	2.4E−08	2.4E−08	8.3E−08	7.5E−03	7.9E−03	2.8E−02	2.7E−04	2.7E−06	NA	NA	NA	NA	NA	NA	NA
lead	4.9E−10	3.5E−08	2.8E−09	5.5E−08	3.7E−04	4.3E−05	8.4E−04	3.6E−04	3.6E−05	NA	2.1E−04	1.8E−04	6.4E−06	1.2E−04	NA	1.7E−09
magnesium	8.3E−08	3.9E−06	1.5E−06	2.9E−05	1.3E+01	7.6E+00	1.4E+02	2.1E−01	2.1E−02	NA	3.7E+00	2.0E+00	4.4E−01	8.4E+00	NA	7.5E−03
manganese	2.6E−09	2.6E−07	2.7E−08	5.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	7.7E−13	3.3E−11	1.2E−09	5.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.2E−11	1.6E−09	1.8E−09	1.1E−08	1.0E−03	1.7E−03	9.9E−03	1.5E−04	1.5E−05	NA	2.9E−03	2.4E−03	1.4E−03	8.4E−03	NA	5.8E−06
nickel	7.0E−11	1.7E−08	7.2E−09	2.8E−08	1.9E−03	8.4E−04	3.3E−03	2.8E−04	1.4E−06	NA	NA	NA	NA	NA	NA	NA
selenium	2.7E−12	3.2E−10	3.9E−10	2.4E−09	1.2E−05	1.6E−05	9.7E−05	4.1E−06	4.1E−07	NA	NA	NA	NA	NA	NA	NA
silver	2.4E−11	4.2E−09	2.9E−09	4.5E−07	NA	NA	NA	NA	NA	NA	1.9E−03	3.9E−03	1.3E−03	2.1E−01	NA	2.2E−06
thallium	1.2E−12	3.2E−11	2.5E−10	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.2E−09	8.4E−08	8.7E−10	6.1E−08	7.5E−05	4.4E−06	3.1E−04	1.6E−04	1.6E−05	NA	1.0E−04	2.7E−05	1.8E−07	1.3E−05	NA	2.0E−07
vanadium	7.0E−11	2.7E−09	9.4E−10	1.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.0E−10	3.2E−06	3.4E−05	7.9E−05	1.0E−01	1.1E+00	2.6E+00	1.0E−03	1.0E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E−04	4.7E−05	5.3E−12	6.9E−11	9.6E−04	5.1E−07
bis(2−ethylhexyl)phthalate	4.4E−14	8.9E−13	7.2E−14	9.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E−16	9.3E−15	9.2E−19	7.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E−14	7.4E−13	6.4E−18	7.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.3E−07	4.5E−06	1.4E−08	1.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.0E−16	5.0E−14	3.1E−13	2.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E−16	3.2E−15	1.4E−16	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E+00	4.1E−01	NA	NA	NA	3.2E−03
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4E−03	1.7E−03	NA	NA	NA	1.3E−05
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.0E−02	1.6E−02	NA	NA	NA	1.2E−04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E+00	2.8E−01	NA	NA	NA	2.2E−03

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12c
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.2E−12	7.0E−11	2.2E−16	1.7E−15	NA	NA	NA	NA	NA	NA	3.5E−03	2.3E−03	4.2E−09	3.1E−08	NA	3.2E−05
aluminum	2.0E−08	5.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	6.9E−01	1.8E−01	NA	NA	NA	1.4E−03
antimony	3.4E−11	2.9E−09	9.3E−10	2.2E−09	NA	NA	NA	NA	NA	NA	2.0E−03	2.0E−03	3.2E−04	7.6E−04	NA	4.0E−06
arsenic	2.2E−11	7.7E−10	2.8E−10	2.0E−10	NA	NA	NA	NA	NA	NA	2.0E−02	7.5E−03	1.4E−03	9.6E−04	NA	4.0E−05
barium	2.9E−10	2.6E−08	1.9E−09	1.1E−07	NA	NA	NA	NA	NA	NA	2.0E−02	2.1E−02	7.9E−04	4.3E−02	NA	3.9E−05
beryllium	2.5E−12	8.1E−11	1.7E−11	3.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.3E−12	4.1E−09	5.2E−10	2.2E−08	NA	NA	NA	NA	NA	NA	1.8E−03	1.1E−02	7.0E−04	3.0E−02	NA	3.6E−06
chromium vi	3.9E−11	1.8E−09	1.4E−09	8.7E−09	NA	NA	NA	NA	NA	NA	7.1E−02	3.7E−02	8.7E−03	5.6E−02	NA	2.8E−04
cobalt	2.1E−11	1.0E−09	3.2E−09	7.4E−09	NA	NA	NA	NA	NA	NA	2.8E−03	1.5E−03	1.9E−03	4.5E−03	NA	2.2E−06
copper	7.7E−11	2.2E−08	2.2E−08	7.7E−08	NA	NA	NA	NA	NA	NA	3.9E−03	1.3E−02	6.7E−03	2.4E−02	NA	7.7E−06
lead	1.3E−09	9.2E−08	7.4E−09	1.4E−07	NA	NA	NA	NA	NA	NA	1.5E−03	1.3E−03	4.6E−05	9.1E−04	NA	1.2E−08
magnesium	6.1E−08	2.9E−06	1.1E−06	2.1E−05	NA	NA	NA	NA	NA	NA	3.6E+00	1.9E+00	4.3E−01	8.2E+00	NA	7.3E−03
manganese	2.1E−09	2.1E−07	2.2E−08	4.4E−07	NA	NA	NA	NA	NA	NA	2.2E−01	2.6E−01	1.3E−02	2.8E−01	NA	4.4E−04
mercury	7.7E−13	3.3E−11	1.2E−09	5.0E−11	NA	NA	NA	NA	NA	NA	9.6E−05	4.5E−05	9.3E−04	3.9E−05	NA	1.9E−07
molybdenum	1.5E−11	1.0E−09	1.2E−09	7.1E−09	NA	NA	NA	NA	NA	NA	2.2E−03	1.8E−03	1.1E−03	6.6E−03	NA	4.5E−06
nickel	4.5E−11	1.1E−08	4.6E−09	1.8E−08	NA	NA	NA	NA	NA	NA	1.9E−03	5.4E−03	1.0E−03	4.1E−03	NA	3.7E−07
selenium	1.9E−12	2.3E−10	2.8E−10	1.7E−09	NA	NA	NA	NA	NA	NA	1.3E−04	1.8E−04	8.8E−05	5.5E−04	NA	2.6E−07
silver	1.5E−11	2.6E−09	1.8E−09	2.8E−07	NA	NA	NA	NA	NA	NA	1.3E−03	2.7E−03	9.3E−04	1.5E−01	NA	1.5E−06
thallium	5.8E−13	1.6E−11	1.2E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.8E−09	1.0E−07	1.0E−09	7.4E−08	7.0E−05	4.1E−06	2.9E−04	1.5E−04	1.5E−05	NA	2.1E−02	5.6E−03	3.7E−05	2.7E−03	NA	4.2E−05
vanadium	5.1E−11	1.9E−09	6.7E−10	1.3E−10	NA	NA	NA	NA	NA	NA	1.9E−03	7.8E−04	8.3E−05	1.6E−05	NA	3.8E−06
zinc	2.7E−10	1.2E−06	1.3E−05	3.0E−05	NA	NA	NA	NA	NA	NA	6.3E−03	3.5E−01	1.9E+00	4.4E+00	NA	7.5E−06
acetone.	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2E−04	1.2E−04	1.3E−11	1.7E−10	2.4E−03	1.3E−06
bis(2−ethylhexyl)phthalate	2.3E−14	4.6E−13	3.7E−14	4.9E−13	NA	NA	NA	NA	NA	NA	6.4E−05	1.3E−05	3.4E−07	5.1E−06	NA	1.1E−04
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.6E−17	3.2E−15	3.2E−19	2.6E−18	NA	NA	NA	NA	NA	NA	1.9E−03	6.7E−04	3.6E−08	3.0E−07	1.4E−02	1.3E−04
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7E−03	2.4E−03	5.4E−08	4.1E−07	2.8E−02	2.2E−04
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.0E−03	2.2E−03	1.7E−07	1.4E−06	5.3E−02	7.3E−04
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E−04	9.6E−05	9.7E−09	7.5E−08	1.9E−03	8.9E−06
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E−14	3.7E−13	3.2E−18	3.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.6E−09	3.3E−07	1.1E−09	8.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4E−04	3.5E−04	7.9E−08	6.1E−07	4.8E−03	9.1E−05
4,4−ddt	3.0E−16	2.2E−14	1.3E−13	9.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.9E−17	2.5E−15	1.1E−16	8.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.0E−02	5.3E−03	NA	NA	NA	4.1E−05
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7E−01	9.6E−02	NA	NA	NA	7.4E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9E−02	7.5E−03	NA	NA	NA	5.8E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.5E+00	1.7E+00	NA	NA	NA	1.3E−02

NA − Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12d
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
WESTERN FENCELINEINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	7.7E−13	4.4E−11	1.4E−16	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E−08	5.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	4.9E−11	4.1E−09	1.3E−09	3.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	2.7E−11	9.8E−10	3.5E−10	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.4E−10	2.1E−08	1.6E−09	8.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E−12	6.9E−11	1.5E−11	3.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.0E−11	5.1E−09	6.4E−10	2.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.8E−11	1.8E−09	1.3E−09	8.6E−09	NA	NA	NA	NA	NA	NA	1.3E−03	6.6E−04	1.6E−04	1.0E−03	NA	5.1E−06
cobalt	2.1E−11	1.0E−09	3.2E−09	7.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.5E−11	1.6E−08	1.6E−08	5.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	3.5E−10	2.5E−08	2.0E−09	3.9E−08	NA	NA	NA	NA	NA	NA	1.4E−03	1.2E−03	4.2E−05	8.3E−04	NA	1.1E−08
magnesium	5.6E−08	2.6E−06	1.0E−06	2.0E−05	NA	NA	NA	NA	NA	NA	2.4E+00	1.2E+00	2.8E−01	5.4E+00	NA	4.8E−03
manganese	2.1E−09	2.1E−07	2.2E−08	4.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	5.3E−13	2.3E−11	8.1E−10	3.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.3E−11	9.1E−10	1.0E−09	6.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	5.1E−11	1.2E−08	5.2E−09	2.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.7E−12	2.1E−10	2.5E−10	1.6E−09	NA	NA	NA	NA	NA	NA	7.7E−05	1.1E−04	5.3E−05	3.3E−04	NA	1.5E−07
silver	1.8E−11	3.1E−09	2.1E−09	3.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	7.0E−13	2.0E−11	1.5E−10	1.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	2.4E−09	6.2E−08	6.4E−10	4.5E−08	6.4E−05	3.8E−06	2.7E−04	1.4E−04	1.4E−05	NA	4.2E−04	1.1E−04	7.4E−07	5.4E−05	NA	8.4E−07
vanadium	4.8E−11	1.8E−09	6.4E−10	1.2E−10	NA	NA	NA	NA	NA	NA	2.4E−04	1.0E−04	1.1E−05	2.0E−06	NA	4.9E−07
zinc	2.7E−10	1.2E−06	1.3E−05	3.0E−05	NA	NA	NA	NA	NA	NA	1.2E−02	6.6E−01	3.5E+00	8.3E+00	NA	1.4E−05
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.0E−14	4.1E−13	3.3E−14	4.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.3E−17	2.8E−15	2.8E−19	2.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−14	2.6E−13	2.3E−18	2.7E−17	NA	NA	NA	NA	NA	NA	6.4E−05	1.6E−05	4.1E−11	5.5E−10	4.8E−04	1.7E−06
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.6E−08	1.6E−06	5.2E−09	3.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.4E−16	1.7E−14	1.1E−13	8.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.5E−17	1.5E−15	6.7E−17	5.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5E−01	6.5E−02	NA	NA	NA	5.0E−04
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8E−01	7.3E−02	NA	NA	NA	5.6E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4E−02	8.8E−03	NA	NA	NA	6.8E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9E+00	2.3E+00	NA	NA	NA	1.8E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12e
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.4E–12	1.4E–10	4.3E–16	3.2E–15	1.5E–02	5.5E–08	4.0E–07	5.5E–06	5.5E–07	NA	NA	NA	NA	NA	NA	NA
aluminum	4.3E–08	1.1E–06	NA	NA	NA	NA	NA	1.2E–01	1.2E–02	NA	NA	NA	NA	NA	NA	NA
antimony	6.4E–11	5.4E–09	1.7E–09	4.1E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	4.3E–11	1.5E–09	5.6E–10	3.9E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	6.3E–10	5.7E–08	4.3E–09	2.3E–07	2.6E–03	2.6E–04	1.4E–02	1.5E–03	1.5E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	5.5E–12	1.8E–10	3.8E–11	8.0E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.0E–11	1.0E–08	1.3E–09	5.4E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.6E–11	4.5E–09	3.4E–09	2.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	4.6E–11	2.2E–09	6.9E–09	1.6E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.1E–10	6.0E–08	6.0E–08	2.1E–07	6.1E–03	6.4E–03	2.2E–02	2.1E–04	2.1E–06	NA	NA	NA	NA	NA	NA	NA
lead	1.5E–09	1.1E–07	8.5E–09	1.7E–07	3.7E–04	4.4E–05	8.5E–04	3.6E–04	3.6E–05	NA	NA	NA	NA	NA	NA	NA
magnesium	1.2E–07	5.7E–06	2.3E–06	4.2E–05	2.4E+00	1.4E+00	2.7E+01	3.9E–02	3.9E–03	NA	NA	NA	NA	NA	NA	NA
manganese	4.3E–09	4.3E–07	4.4E–08	9.1E–07	1.1E–01	1.5E–02	3.0E–01	1.9E–02	1.9E–03	NA	NA	NA	NA	NA	NA	NA
mercury	1.7E–12	7.4E–11	2.6E–09	1.1E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.2E–11	2.9E–09	3.4E–09	2.0E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E–10	2.6E–08	1.1E–08	4.3E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	3.9E–12	4.6E–10	5.6E–10	3.5E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	3.5E–11	6.1E–09	4.2E–09	6.5E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.7E–12	4.8E–11	3.7E–10	4.3E–10	1.9E–07	1.7E–05	1.9E–05	4.1E–06	4.1E–07	NA	NA	NA	NA	NA	NA	NA
uranium–total	6.1E–09	1.6E–07	1.7E–09	1.2E–07	1.2E–04	6.9E–06	4.9E–04	2.6E–04	2.6E–05	NA	NA	NA	NA	NA	NA	NA
vanadium	1.2E–10	4.4E–09	1.5E–09	2.9E–10	1.2E–04	9.6E–05	1.8E–05	3.4E–04	3.4E–06	NA	NA	NA	NA	NA	NA	NA
zinc	1.2E–09	5.2E–06	5.5E–05	1.3E–04	1.5E–01	1.6E+00	3.8E+00	1.5E–03	1.5E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	8.9E–14	1.8E–12	1.5E–13	1.9E–12	2.8E–06	5.3E–07	7.0E–06	9.6E–07	3.8E–08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.2E–16	1.7E–14	1.7E–18	1.4E–17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.0E–05	5.0E–06	3.7E–05	5.0E–06	1.5E–05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E–13	2.5E–12	2.1E–17	2.5E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.6E–05	4.8E–06	3.6E–05	3.6E–06	1.1E–05	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.4E–05	2.2E–06	1.6E–05	3.5E–06	1.0E–05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.6E–08	1.3E–06	4.1E–09	3.1E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	1.2E–15	8.7E–14	5.4E–13	4.0E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E–16	4.5E–15	2.0E–16	1.5E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–12f
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.4E−12	1.4E−10	4.3E−16	3.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	3.2E−08	8.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	5.0E−11	4.2E−09	1.4E−09	3.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	3.3E−11	1.2E−09	4.2E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	4.2E−10	3.8E−08	2.8E−09	1.5E−07	NA	NA	NA	NA	NA	NA	5.8E−03	6.2E−03	2.3E−04	1.3E−02	NA	1.2E−05
beryllium	3.5E−12	1.1E−10	2.4E−11	5.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E−11	6.4E−09	8.0E−10	3.4E−08	NA	NA	NA	NA	NA	NA	2.2E−04	1.3E−03	8.3E−05	3.6E−03	NA	4.3E−07
chromium vi	6.1E−11	2.8E−09	2.1E−09	1.4E−08	NA	NA	NA	NA	NA	NA	4.7E−03	2.4E−03	5.7E−04	3.7E−03	NA	1.9E−05
cobalt	3.2E−11	1.6E−09	4.8E−09	1.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.5E−10	4.4E−08	4.4E−08	1.5E−07	NA	NA	NA	NA	NA	NA	4.5E−04	1.6E−03	7.9E−04	2.8E−03	NA	9.1E−07
lead	3.7E−09	2.7E−07	2.1E−08	4.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	1.0E−07	4.8E−06	1.9E−06	3.6E−05	NA	NA	NA	NA	NA	NA	2.0E+00	1.0E+00	2.4E−01	4.5E+00	NA	4.0E−03
manganese	3.1E−09	3.1E−07	3.2E−08	6.6E−07	NA	NA	NA	NA	NA	NA	1.9E−02	2.2E−02	1.2E−03	2.4E−02	NA	3.8E−05
mercury	1.1E−12	4.6E−11	1.7E−09	7.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.6E−11	1.9E−09	2.2E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	7.0E−11	1.7E−08	7.2E−09	2.8E−08	NA	NA	NA	NA	NA	NA	4.2E−03	1.2E−02	2.3E−03	9.1E−03	NA	8.3E−07
selenium	2.4E−12	2.8E−10	3.4E−10	2.1E−09	NA	NA	NA	NA	NA	NA	1.8E−04	2.5E−04	1.2E−04	7.7E−04	NA	3.6E−07
silver	2.6E−11	4.4E−09	3.0E−09	4.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	8.9E−13	2.5E−11	1.9E−10	2.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	4.7E−09	1.2E−07	1.3E−09	9.1E−08	6.4E−05	3.8E−06	2.7E−04	1.4E−04	1.4E−05	NA	5.8E−05	1.5E−05	1.0E−07	7.3E−06	NA	1.2E−07
vanadium	7.7E−11	2.9E−09	1.0E−09	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	3.9E−10	1.8E−06	1.9E−05	4.4E−05	NA	NA	NA	NA	NA	NA	3.2E−04	1.8E−02	9.6E−02	2.2E−01	NA	3.8E−07
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.9E−14	5.9E−13	4.8E−14	6.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.3E−16	4.3E−15	4.3E−19	3.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E−14	5.5E−13	4.8E−18	5.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E−08	3.6E−07	1.2E−09	8.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	3.7E−16	2.7E−14	1.6E−13	1.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E−16	2.9E−15	1.2E−16	9.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E−01	3.8E−02	NA	NA	NA	2.9E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0E−02	2.7E−03	NA	NA	NA	2.0E−05
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-13a
INTAKES FOR CARCINOGENS FOR GREAT MIAMI RIVER USER
GREAT MIAMI RIVER OUTFALL, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life			pCi/life		pCi/life
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.4E+05	2.5E+04	1.2E+03	8.6E+03	NA	NA	7.6E+01	NA	7.9E+04
Ra_{228+1d}	2.0E+05	2.9E+04	5.4E+02	4.0E+03	NA	NA	1.1E+02	NA	1.1E+05
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	2.0E+04	3.0E+03	1.6E+00	5.3E+00	NA	NA	1.1E+01	NA	6.8E+03
Th_{232}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.4E+04	6.7E+03	1.0E+02	1.2E+03	NA	NA	2.5E+01	NA	1.0E+03
$U_{235/236}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	3.9E+04	6.0E+03	8.9E+01	1.1E+03	NA	NA	2.2E+01	NA	9.1E+02
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.9E-05	1.7E-05	7.0E-06	8.5E-07	NA	2.3E-07	4.4E-08	4.9E-08	4.0E-05
beryllium	2.1E-04	4.2E-05	7.1E-06	2.6E-08	NA	6.1E-07	1.2E-07	1.3E-07	4.6E-05
cadmium	1.5E-04	5.1E-04	7.2E-05	5.2E-04	NA	4.2E-07	8.1E-08	8.9E-08	1.4E-04
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-13b
INTAKES FOR CARCINOGENS FOR GREAT MIAMI RIVER USER CONFLUENCE WITH PADDYS RUN, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life			pCi/life		pCi/life
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.2E+05	2.2E+04	1.1E+03	7.7E+03	NA	NA	6.8E+01	NA	7.1E+04
Ra_{228+1d}	2.3E+05	3.4E+04	6.2E+02	4.6E+03	NA	NA	1.3E+02	NA	1.3E+05
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	3.4E+04	5.2E+03	2.7E+00	9.4E+00	NA	NA	1.9E+01	NA	1.2E+04
Th_{232}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.9E+04	6.0E+03	8.9E+01	1.1E+03	NA	NA	2.2E+01	NA	9.1E+02
$U_{235/236}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	2.9E+04	4.5E+03	6.7E+01	8.3E+02	NA	NA	1.6E+01	NA	6.8E+02
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.6E-04	3.6E-05	1.5E-05	1.8E-06	NA	4.7E-07	9.2E-08	1.0E-07	8.4E-05
beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E-04	1.7E-03	2.4E-04	1.8E-03	NA	1.4E-06	2.7E-07	3.0E-07	4.6E-04
chromium vi	7.2E-03	2.2E-03	1.1E-03	1.3E-03	NA	4.2E-05	4.0E-06	8.9E-06	1.3E-03
nickel	7.1E-04	1.2E-03	5.1E-04	3.4E-04	NA	2.0E-07	4.0E-07	4.4E-08	3.9E-04
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.4E-03	5.1E-04	3.0E-05	7.7E-05	NA	1.1E-02	2.4E-06	6.9E-04	3.1E-01
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.5E-05	2.2E-05	9.6E-09	1.2E-08	2.1E-04	1.0E-05	3.1E-08	7.6E-07	2.5E-05
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-14a
INTAKES FOR TOXICANTS FOR GREAT MIAMI RIVER USER
GREAT MIAMI RIVER OUTFALL, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways:	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.7E-04	6.3E-05	2.6E-10	3.3E-10	NA	2.2E-06	9.3E-08	2.6E-07	2.1E-06
aluminum	1.8E-02	2.7E-03	NA	NA	NA	5.3E-05	1.0E-05	1.1E-05	NA
antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	7.9E-05	1.7E-05	7.0E-06	8.5E-07	NA	2.3E-07	4.4E-08	4.9E-08	4.0E-05
barium	2.8E-03	1.7E-03	1.4E-04	1.3E-03	NA	8.0E-06	1.5E-06	1.7E-06	NA
beryllium	2.1E-04	4.2E-05	7.1E-06	2.6E-08	NA	6.1E-07	1.2E-07	1.3E-07	4.6E-05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.5E-04	5.1E-04	7.2E-05	5.2E-04	NA	4.2E-07	8.1E-08	8.9E-08	1.4E-04
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	2.1E-04	1.0E-04	8.3E-06	2.8E-05	NA	2.5E-09	1.2E-07	5.2E-10	1.2E-04
magnesium	8.9E-01	2.7E-01	1.4E-01	4.4E-01	NA	2.6E-03	4.9E-04	5.5E-04	NA
manganese	2.5E-03	1.7E-03	2.0E-04	6.9E-04	NA	7.0E-06	1.4E-06	1.5E-06	NA
mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	6.8E-05	1.0E-05	1.6E-07	1.9E-06	NA	2.0E-07	3.8E-08	4.2E-08	1.6E-09
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	1.1E-03	1.6E-04	NA	NA	NA	3.1E-06	6.0E-07	6.6E-07	NA
nitrate	1.0E-01	1.5E-02	NA	NA	NA	2.9E-04	5.6E-05	6.2E-05	NA
fluoride	8.2E-03	1.2E-03	NA	NA	NA	2.4E-05	4.6E-06	5.0E-06	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	1.7E+00	2.5E-01	NA	NA	NA	4.8E-03	9.3E-04	1.0E-03	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-14b
INTAKES FOR TOXICANTS FOR GREAT MIAMI RIVER USER
CONFLUENCE WITH PADDYS RUN, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways:	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.9E-04	2.2E-04	9.0E-10	1.2E-09	NA	7.7E-06	3.3E-07	9.1E-07	7.4E-06
aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	1.6E-04	3.6E-05	1.5E-05	1.8E-06	NA	4.7E-07	9.2E-08	1.0E-07	8.4E-05
barium	6.2E-03	3.8E-03	3.2E-04	3.0E-03	NA	1.8E-05	3.5E-06	3.8E-06	NA
beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E-04	1.7E-03	2.4E-04	1.8E-03	NA	1.4E-06	2.7E-07	3.0E-07	4.6E-04
chromium vi	7.2E-03	2.2E-03	1.1E-03	1.3E-03	NA	4.2E-05	4.0E-06	8.9E-06	1.3E-03
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	8.4E-04	1.7E-03	1.9E-03	1.1E-03	NA	2.4E-06	4.7E-07	5.2E-07	2.0E-03
lead	1.2E-03	5.8E-04	4.7E-05	1.6E-04	NA	1.4E-08	6.7E-07	3.0E-09	6.9E-04
magnesium	1.3E+00	3.9E-01	2.0E-01	6.5E-01	NA	3.7E-03	7.3E-04	8.0E-04	NA
manganese	1.5E-02	1.0E-02	1.2E-03	4.3E-03	NA	4.4E-05	8.6E-06	9.4E-06	NA
mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	7.1E-04	1.2E-03	5.1E-04	3.4E-04	NA	2.0E-07	4.0E-07	4.4E-08	3.9E-04
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	7.7E-05	1.2E-05	1.7E-07	2.2E-06	NA	2.2E-07	4.3E-08	4.7E-08	1.8E-09
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	3.1E-03	9.9E-02	1.2E+00	4.7E-01	NA	5.3E-06	1.7E-06	1.1E-06	1.7E-03
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.4E-03	5.1E-04	3.0E-05	7.7E-05	NA	1.1E-02	2.4E-06	6.9E-04	3.1E-01
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	5.5E-05	8.0E-06	2.0E-02	2.7E-02	NA	1.1E-01	3.1E-08	7.0E-03	3.6E+00
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-15a
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	6.2E-01	5.6E+02	NA	3.1E+00
Np_{237+1d}	2.8E-01	2.3E+02	NA	1.3E+00
Pu_{238}	8.0E+00	2.4E+03	NA	1.3E+01
$Pu_{239/240}$	1.1E+00	6.7E+02	NA	3.7E+00
Ra_{226+8d}	1.6E+02	1.5E+03	NA	8.3E+00
Ru_{106}	6.4E-01	NA	NA	NA
Sr_{90+1d}	1.4E+00	9.7E+02	NA	5.3E+00
Tc_{99}	7.4E+00	3.4E+03	NA	1.8E+01
Th_{230}	3.5E+02	4.0E+04	NA	2.2E+02
$Th_{232+10d}$	2.6E+01	1.7E+04	NA	9.2E+01
U_{234}	9.0E+02	2.7E+05	NA	1.5E+03
$U_{235/236}$	7.4E+01	2.3E+04	NA	1.3E+02
U_{238+2d}	9.8E+02	3.5E+05	NA	1.9E+03
Rn_{222+4d}	2.5E+06	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	5.1E-09	3.8E-06	2.2E-07	NA
beryllium	5.6E-10	4.2E-07	2.4E-07	NA
cadmium	2.1E-09	1.8E-06	1.1E-06	NA
chromium vi	1.1E-08	9.6E-06	5.5E-06	NA
nickel	1.2E-08	8.9E-06	2.6E-07	NA
benzene	5.0E-15	9.2E-10	2.6E-11	NA
bis(2-ethylhexyl)phthalate	5.8E-12	1.0E-07	2.3E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	2.4E-12	5.2E-08	9.0E-07	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.6E-14	3.2E-09	5.6E-08	NA
1,1-dichloroethene	NA	1.4E-09	2.5E-08	NA
1,2-dichloroethane	NA	2.0E-11	3.4E-10	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.7E-12	6.3E-09	1.1E-07	NA
n-nitrosodiphenylamine	6.1E-12	1.5E-07	2.5E-06	NA
n-nitrosodipropylamine	1.0E-13	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.6E-06	7.7E-09	1.8E-07	NA
trichloroethene	3.1E-06	7.4E-09	1.3E-07	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	3.0E-11	4.8E-07	8.2E-06	NA
benzo(a)pyrene	3.3E-11	4.0E-07	6.9E-06	NA
benzo(b)fluoranthene	3.4E-11	4.3E-07	7.4E-06	NA
benzo(k)fluoranthene	2.7E-11	3.4E-07	5.8E-06	NA
chrysene	3.0E-11	4.5E-07	7.7E-06	NA
dibenzo(a,h)anthracene	9.7E-12	1.2E-07	2.2E-06	NA
indeno(1,2,3-cd)pyrene	2.2E-11	3.3E-07	5.6E-06	NA
aroclor-1254	6.1E-11	8.0E-07	2.7E-06	NA
aroclor-1260	6.1E-13	1.9E-07	6.6E-07	NA
4,4-ddt	1.1E-13	NA	NA	NA
4,4-dde	1.4E-13	NA	NA	NA
chlordane	3.2E-14	NA	NA	NA
dieldrin	4.2E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	3.2E-12	5.5E-12	NA
octachlorodibenzo-p-dioxin	4.6E-15	1.1E-11	1.9E-11	NA
octachlorodibenzofuran	1.3E-15	1.3E-11	2.2E-11	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15b
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	7.1E-02	4.8E+02	NA	2.6E+00
Np_{237+1d}	1.9E-02	5.1E+02	NA	2.8E+00
Pu_{238}	4.4E-01	NA	NA	NA
$Pu_{239/240}$	1.1E-01	NA	NA	NA
Ra_{226+8d}	1.5E+01	NA	NA	NA
Ru_{106}	8.3E-02	NA	NA	NA
Sr_{90+1d}	1.2E-01	8.8E+02	NA	4.8E+00
Tc_{99}	9.4E-01	1.0E+03	NA	5.5E+00
Th_{230}	1.6E+01	1.1E+03	NA	6.0E+00
$Th_{232+10d}$	1.8E+00	NA	NA	NA
U_{234}	4.6E+01	2.5E+03	NA	1.4E+01
$U_{235/236}$	4.1E+00	4.4E+02	NA	2.4E+00
U_{238+2d}	5.6E+01	3.2E+03	NA	1.7E+01
Rn_{222+4d}	3.9E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.3E-09	NA	NA	NA
beryllium	1.4E-10	5.6E-07	3.2E-07	NA
cadmium	7.7E-10	5.9E-07	3.4E-07	NA
chromium vi	2.6E-09	5.0E-06	2.9E-06	NA
nickel	3.5E-09	5.9E-06	1.7E-07	NA
benzene	1.7E-15	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-12	2.1E-07	4.7E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	1.7E-13	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	7.7E-15	NA	NA	NA
[illegible]dichloroethene	NA	NA	NA	NA
[illegible]hloroethane	NA	NA	NA	NA
[illegible]roisopropyl)ether	NA	NA	NA	NA
[illegible]henol	NA	NA	NA	NA
[illegible]chloride	2.9E-13	NA	NA	NA
[illegible]diphenylamine	1.1E-12	NA	NA	NA
[illegible]trosodipropylamine	3.4E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.7E-06	NA	NA	NA
trichloroethene	1.5E-05	1.4E-09	2.4E-08	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	3.7E-12	1.7E-08	2.9E-07	NA
benzo(a)pyrene	4.4E-12	NA	NA	NA
benzo(b)fluoranthene	5.5E-12	2.0E-08	3.4E-07	NA
benzo(k)fluoranthene	4.7E-12	2.1E-08	3.6E-07	NA
chrysene	4.6E-12	2.7E-08	4.6E-07	NA
dibenzo(a,h)anthracene	1.4E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.5E-12	NA	NA	NA
aroclor-1254	4.3E-12	NA	NA	NA
aroclor-1260	2.1E-13	NA	NA	NA
4,4-ddt	2.2E-14	NA	NA	NA
4,4-dde	7.7E-15	NA	NA	NA
chlordane	4.5E-15	NA	NA	NA
dieldrin	3.6E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.1E-16	NA	NA	NA
octachlorodibenzofuran	4.3E-16	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15c
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation			
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	2.7E-01	5.0E+02	NA	2.7E+00
Np_{237+1d}	6.1E-02	NA	NA	NA
Pu_{238}	1.5E+00	NA	NA	NA
$Pu_{239/240}$	3.3E-01	1.6E+02	NA	8.9E-01
Ra_{226+8d}	2.0E+02	2.7E+02	NA	1.5E+00
Ru_{106}	1.2E-01	1.6E+03	NA	8.6E+00
Sr_{90+1d}	8.5E-01	1.6E+03	NA	8.9E+00
Tc_{99}	8.4E+00	NA	NA	NA
Th_{230}	4.3E+02	1.2E+03	NA	6.6E+00
$Th_{232+10d}$	1.4E+01	1.4E+04	NA	7.8E+01
U_{234}	2.7E+02	1.3E+03	NA	7.2E+00
$U_{235/236}$	2.0E+01	7.8E+03	NA	4.3E+01
U_{238+2d}	2.7E+02	1.7E+03	NA	9.2E+00
Rn_{222+4d}	1.4E+06	1.1E+05	NA	6.3E+02
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	2.5E-09	NA	NA	NA
beryllium	3.1E-10	3.4E-07	1.9E-07	NA
cadmium	1.3E-09	8.3E-07	4.8E-07	NA
chromium vi	5.5E-09	5.5E-06	3.1E-06	NA
nickel	6.4E-09	7.2E-06	2.1E-07	NA
benzene	7.6E-15	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.6E-12	3.3E-08	7.7E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	2.1E-12	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.7E-14	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	5.7E-12	1.1E-08	2.0E-07	NA
n-nitrosodiphenylamine	1.7E-12	NA	NA	NA
n-nitrosodipropylamine	1.5E-13	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.7E-06	6.2E-09	1.4E-07	NA
trichloroethene	3.5E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.2E-11	1.3E-07	2.2E-06	NA
benzo(a)pyrene	2.6E-11	1.0E-07	1.7E-06	NA
benzo(b)fluoranthene	2.5E-11	3.5E-07	6.0E-06	NA
benzo(k)fluoranthene	2.7E-11	6.1E-08	1.1E-06	NA
chrysene	2.0E-11	2.0E-07	3.5E-06	NA
dibenzo(a,h)anthracene	8.8E-12	1.4E-08	2.4E-07	NA
indeno(1,2,3-cd)pyrene	1.7E-11	5.0E-08	8.7E-07	NA
aroclor-1254	3.2E-11	5.1E-09	1.8E-08	NA
aroclor-1260	9.3E-13	4.7E-08	1.6E-07	NA
4,4-ddt	8.4E-14	NA	NA	NA
4,4-dde	2.7E-14	NA	NA	NA
chlordane	6.7E-15	NA	NA	NA
dieldrin	8.6E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.8E-15	NA	NA	NA
octachlorodibenzofuran	1.9E-15	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15d
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation			
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.2E-01	3.2E+02	NA	1.8E+00
Np_{237+1d}	3.9E-02	NA	NA	NA
Pu_{238}	2.0E+00	NA	NA	NA
$Pu_{239/240}$	2.4E-01	3.8E+02	NA	2.1E+00
Ra_{226+8d}	3.0E+01	NA	NA	NA
Ru_{106}	5.9E-02	NA	NA	NA
Sr_{90+1d}	3.0E-01	1.3E+03	NA	7.3E+00
Tc_{99}	2.5E+00	NA	NA	NA
Th_{230}	1.2E+02	1.1E+03	NA	6.1E+00
$Th_{232+10d}$	7.5E+00	NA	NA	NA
U_{234}	2.1E+02	4.2E+03	NA	2.3E+01
$U_{235/236}$	1.6E+01	5.0E+02	NA	2.7E+00
U_{238+2d}	2.3E+02	2.9E+03	NA	1.6E+01
Rn_{222+4d}	1.7E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.4E-09	NA	NA	NA
beryllium	1.7E-10	4.9E-07	2.8E-07	NA
cadmium	5.4E-10	9.8E-07	5.6E-07	NA
chromium vi	2.7E-09	4.6E-06	2.7E-06	NA
nickel	3.0E-09	5.2E-06	1.5E-07	NA
benzene	9.1E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.5E-12	1.8E-08	4.1E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	5.2E-13	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	6.6E-15	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	9.1E-13	NA	NA	NA
n-nitrosodiphenylamine	5.2E-13	NA	NA	NA
n-nitrosodipropylamine	1.8E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	4.2E-07	1.0E-09	2.4E-08	NA
trichloroethene	8.4E-07	7.0E-10	1.2E-08	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	5.2E-12	NA	NA	NA
benzo(a)pyrene	5.8E-12	NA	NA	NA
benzo(b)fluoranthene	6.0E-12	NA	NA	NA
benzo(k)fluoranthene	5.0E-12	NA	NA	NA
chrysene	5.2E-12	NA	NA	NA
dibenzo(a,h)anthracene	1.7E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.8E-12	NA	NA	NA
aroclor-1254	1.3E-11	NA	NA	NA
aroclor-1260	1.1E-13	NA	NA	NA
4,4-ddt	2.1E-14	NA	NA	NA
4,4-dde	2.8E-14	NA	NA	NA
chlordane	3.8E-15	NA	NA	NA
dieldrin	7.0E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.4E-16	NA	NA	NA
octachlorodibenzofuran	2.3E-16	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15e
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.2E-01	4.8E+02	NA	2.6E+00
Np_{237+1d}	4.6E-02	NA	NA	NA
Pu_{238}	2.4E+00	NA	NA	NA
$Pu_{239/240}$	2.8E-01	NA	NA	NA
Ra_{226+8d}	2.5E+01	NA	NA	NA
Ru_{106}	9.6E-02	NA	NA	NA
Sr_{90+1d}	2.9E-01	1.0E+03	NA	5.5E+00
Tc_{99}	1.5E+00	8.1E+02	NA	4.5E+00
Th_{230}	1.2E+02	1.4E+03	NA	7.9E+00
$Th_{232+10d}$	6.4E+00	NA	NA	NA
U_{234}	2.3E+02	1.2E+04	NA	6.6E+01
$U_{235/236}$	1.9E+01	1.5E+03	NA	8.4E+00
U_{238+2d}	2.5E+02	2.3E+04	NA	1.2E+02
Rn_{222+4d}	1.3E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.6E-09	NA	NA	NA
beryllium	1.7E-10	5.9E-07	3.4E-07	NA
cadmium	5.4E-10	4.5E-07	2.6E-07	NA
chromium vi	2.5E-09	NA	NA	NA
nickel	3.0E-09	NA	NA	NA
benzene	7.7E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-12	2.4E-07	5.6E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	3.5E-13	2.4E-09	4.2E-08	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	4.4E-15	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	6.4E-13	NA	NA	NA
n-nitrosodiphenylamine	6.2E-13	NA	NA	NA
n-nitrosodipropylamine	1.5E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	5.1E-07	7.0E-10	1.6E-08	NA
trichloroethene	1.0E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	5.0E-12	2.3E-08	4.0E-07	NA
benzo(a)pyrene	5.5E-12	2.1E-08	3.7E-07	NA
benzo(b)fluoranthene	5.7E-12	2.3E-08	4.0E-07	NA
benzo(k)fluoranthene	4.3E-12	2.7E-08	4.6E-07	NA
chrysene	5.5E-12	3.1E-08	5.3E-07	NA
dibenzo(a,h)anthracene	1.5E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.8E-12	1.7E-08	3.0E-07	NA
aroclor-1254	1.2E-11	NA	NA	NA
aroclor-1260	9.1E-14	NA	NA	NA
4,4-ddt	2.0E-14	NA	NA	NA
4,4-dde	2.8E-14	NA	NA	NA
chlordane	4.3E-15	NA	NA	NA
dieldrin	7.7E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.9E-16	NA	NA	NA
octachlorodibenzofuran	1.8E-16	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15f
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.1E-01	6.9E+02	NA	3.8E+00
Np_{237+1d}	4.2E-02	6.8E+02	NA	3.7E+00
Pu_{238}	6.0E-01	1.9E+02	NA	1.0E+00
$Pu_{239/240}$	1.4E-01	1.9E+02	NA	1.0E+00
Ra_{226+8d}	3.1E+01	2.2E+04	NA	1.2E+02
Ru_{106}	2.8E-01	1.9E+03	NA	1.1E+01
Sr_{90+1d}	2.2E-01	9.4E+02	NA	5.1E+00
Tc_{99}	1.1E+00	7.5E+02	NA	4.1E+00
Th_{230}	4.1E+01	2.2E+04	NA	1.2E+02
$Th_{232+10d}$	2.6E+00	1.6E+03	NA	8.7E+00
U_{234}	6.0E+01	2.0E+04	NA	1.1E+02
$U_{235/236}$	5.9E+00	8.8E+02	NA	4.8E+00
U_{238+2d}	7.1E+01	4.5E+04	NA	2.4E+02
Rn_{222+4d}	4.1E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	4.9E-09	3.5E-06	2.0E-07	NA
beryllium	2.5E-10	2.6E-07	1.5E-07	NA
cadmium	1.5E-09	2.0E-06	1.2E-06	NA
chromium vi	5.0E-09	5.4E-06	3.1E-06	NA
nickel	6.8E-09	7.8E-06	2.3E-07	NA
benzene	1.0E-15	1.0E-09	3.0E-11	NA
bis(2-ethylhexyl)phthalate	1.3E-12	1.3E-06	3.0E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	3.5E-13	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	5.2E-15	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	9.1E-13	9.8E-09	1.7E-07	NA
n-nitrosodiphenylamine	2.1E-12	NA	NA	NA
n-nitrosodipropylamine	2.1E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.5E-06	NA	NA	NA
trichloroethene	6.9E-06	2.1E-09	3.6E-08	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	4.6E-12	4.5E-07	7.8E-06	NA
benzo(a)pyrene	5.2E-12	3.4E-07	5.9E-06	NA
benzo(b)fluoranthene	5.2E-12	8.4E-07	1.4E-05	NA
benzo(k)fluoranthene	5.0E-12	2.1E-08	3.7E-07	NA
chrysene	4.5E-12	3.8E-07	6.6E-06	NA
dibenzo(a,h)anthracene	1.5E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.3E-12	1.4E-08	2.4E-07	NA
aroclor-1254	6.3E-12	4.9E-09	1.7E-08	NA
aroclor-1260	1.3E-13	NA	NA	NA
4,4-ddt	1.9E-14	NA	NA	NA
4,4-dde	1.0E-14	NA	NA	NA
chlordane	8.4E-15	NA	NA	NA
dieldrin	6.2E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.5E-15	3.1E-10	5.4E-10	NA
octachlorodibenzofuran	2.7E-16	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-15g
INTAKES FOR CARCINOGENS FOR GROUNDSKEEPER SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life
Cs_{137+1d}	1.2E-01	NA	NA	NA
Np_{237+1d}	4.1E-02	NA	NA	NA
Pu_{238}	1.9E+00	NA	NA	NA
$Pu_{239/240}$	2.4E-01	1.1E+03	NA	5.8E+00
Ra_{226+8d}	NA	NA	NA	NA
Ru_{106}	6.6E-02	NA	NA	NA
Sr_{90+1d}	3.9E-01	1.1E+03	NA	5.8E+00
Tc_{99}	4.6E+00	NA	NA	NA
Th_{230}	1.5E+02	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA
U_{234}	2.3E+02	2.3E+03	NA	1.2E+01
$U_{235/236}$	1.8E+01	5.1E+02	NA	2.8E+00
U_{238+2d}	2.3E+02	1.7E+03	NA	9.2E+00
Rn_{222+4d}	2.5E+05	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	2.1E-09	4.6E-06	2.7E-07	NA
beryllium	2.2E-10	2.6E-07	1.5E-07	NA
cadmium	8.4E-10	NA	NA	NA
chromium vi	4.0E-09	1.5E-05	8.6E-06	NA
nickel	4.3E-09	NA	NA	NA
benzene	1.2E-15	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-12	2.2E-08	5.0E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	7.0E-13	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	7.7E-15	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.2E-12	NA	NA	NA
n-nitrosodiphenylamine	5.7E-13	NA	NA	NA
n-nitrosodipropylamine	2.2E-14	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	4.5E-07	NA	NA	NA
trichloroethene	9.1E-07	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA
benzo(a)pyrene	6.8E-12	NA	NA	NA
benzo(b)fluoranthene	7.0E-12	NA	NA	NA
benzo(k)fluoranthene	6.2E-12	NA	NA	NA
chrysene	6.0E-12	NA	NA	NA
dibenzo(a,h)anthracene	2.2E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.5E-12	NA	NA	NA
aroclor-1254	1.3E-11	NA	NA	NA
aroclor-1260	1.4E-13	NA	NA	NA
4,4-ddt	2.2E-14	NA	NA	NA
4,4-dde	2.6E-14	NA	NA	NA
chlordane	3.8E-15	NA	NA	NA
dieldrin	7.0E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.9E-16	NA	NA	NA
octachlorodibenzofuran	2.9E-16	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16a
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	7.6E-10	8.4E-07	4.8E-07	NA
aluminum	1.4E-05	1.2E-02	6.8E-03	NA
antimony	3.2E-08	2.3E-05	1.3E-05	NA
arsenic	1.4E-08	1.1E-05	6.1E-07	NA
barium	2.6E-07	2.3E-04	1.3E-04	NA
beryllium	1.6E-09	1.2E-06	6.7E-07	NA
boron	NA	NA	NA	NA
cadmium	6.0E-09	5.1E-06	3.0E-06	NA
chromium vi	3.0E-08	2.7E-05	1.5E-05	NA
cobalt	1.5E-08	1.2E-05	6.7E-06	NA
copper	4.9E-08	4.2E-05	2.4E-06	NA
lead	5.7E-07	1.2E-04	6.9E-05	NA
magnesium	3.7E-05	4.0E-03	2.3E-03	NA
manganese	1.4E-06	5.6E-04	3.2E-04	NA
mercury	8.5E-10	6.5E-07	1.9E-06	NA
molybdenum	1.2E-08	7.4E-06	4.3E-06	NA
nickel	3.4E-08	2.5E-05	7.2E-07	NA
selenium	1.9E-09	8.5E-07	4.9E-07	NA
silver	1.3E-08	4.6E-06	NA	NA
thallium	4.6E-10	4.5E-07	2.6E-07	NA
uranium-total	4.0E-06	9.0E-04	5.2E-04	NA
vanadium	3.6E-08	2.7E-05	1.5E-06	NA
zinc	2.0E-07	1.4E-04	7.9E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-11	2.8E-07	6.5E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
[illegible]omethane	NA	NA	NA	NA
[illegible]orm	9.9E-14	9.0E-09	1.6E-07	NA
1-di[illegible]oroethane	NA	4.9E-09	8.5E-08	NA
[illegible]oroethene	NA	4.0E-09	6.9E-08	NA
[illegible]oroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.6E-06	4.6E-05	NA
methylene chloride	1.3E-11	1.8E-08	3.0E-07	NA
pyrene	NA	2.0E-06	3.5E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	2.3E-06	4.0E-05	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	4.4E-06	2.2E-08	5.0E-07	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	2.0E-08	3.4E-07	NA
4,4-ddt	3.2E-13	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.2E-13	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16b
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.5E-10	5.2E-07	3.0E-07	NA
aluminum	3.7E-06	9.6E-03	5.5E-03	NA
antimony	7.8E-09	3.1E-06	1.8E-06	NA
arsenic	3.7E-09	NA	NA	NA
barium	4.1E-08	9.9E-05	5.7E-05	NA
beryllium	3.9E-10	1.6E-06	9.0E-07	NA
boron	NA	1.4E-05	8.0E-06	NA
cadmium	2.2E-09	1.7E-06	9.6E-07	NA
chromium vi	7.2E-09	1.4E-05	8.0E-06	NA
cobalt	4.3E-09	1.2E-05	6.8E-06	NA
copper	1.0E-08	1.6E-05	9.2E-07	NA
lead	4.3E-08	2.2E-05	1.3E-05	NA
magnesium	1.2E-05	1.7E-02	9.9E-03	NA
manganese	3.5E-07	9.3E-04	5.3E-04	NA
mercury	6.7E-11	NA	NA	NA
molybdenum	3.1E-09	1.1E-05	6.6E-06	NA
nickel	9.8E-09	1.7E-05	4.8E-07	NA
selenium	3.5E-10	7.5E-07	4.3E-07	NA
silver	3.5E-09	3.8E-06	NA	NA
thallium	1.7E-10	6.6E-07	3.8E-07	NA
uranium-total	2.7E-07	1.4E-05	8.3E-06	NA
vanadium	9.4E-09	NA	NA	NA
zinc	1.3E-07	6.7E-05	3.8E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.9E-12	5.8E-07	1.3E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	2.2E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.6E-07	2.7E-06	NA
methylene chloride	8.2E-13	NA	NA	NA
pyrene	NA	1.3E-07	2.2E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	9.3E-08	1.6E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	2.2E-05	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	6.1E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.0E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16c
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	4.4E-10	5.3E-07	3.0E-07	NA
aluminum	7.0E-06	1.0E-02	6.0E-03	NA
antimony	1.1E-08	5.0E-06	2.9E-06	NA
arsenic	7.0E-09	NA	NA	NA
barium	9.8E-08	1.3E-04	7.6E-05	NA
beryllium	8.7E-10	9.5E-07	5.4E-07	NA
boron	NA	NA	NA	NA
cadmium	3.6E-09	2.3E-06	1.3E-06	NA
chromium vi	1.5E-08	1.5E-05	8.8E-06	NA
cobalt	7.6E-09	1.4E-05	8.1E-06	NA
copper	3.2E-08	2.0E-05	1.1E-06	NA
lead	3.1E-07	7.7E-05	4.4E-05	NA
magnesium	2.3E-05	4.9E-02	2.8E-02	NA
manganese	7.4E-07	1.8E-03	1.0E-03	NA
mercury	2.8E-10	1.2E-07	3.4E-07	NA
molybdenum	6.6E-09	1.1E-05	6.3E-06	NA
nickel	1.8E-08	2.0E-05	5.8E-07	NA
selenium	5.7E-10	5.2E-07	3.0E-07	NA
silver	5.6E-09	1.3E-06	NA	NA
thallium	2.8E-10	6.9E-07	4.0E-07	NA
uranium-total	1.1E-06	2.3E-04	1.3E-04	NA
vanadium	1.8E-08	3.0E-05	1.8E-06	NA
zinc	1.9E-07	3.0E-04	1.7E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-11	9.4E-08	2.2E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.0E-13	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	4.8E-07	8.3E-06	NA
methylene chloride	1.6E-11	3.2E-08	5.5E-07	NA
pyrene	NA	7.9E-07	1.4E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	2.6E-07	4.5E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	4.9E-06	1.7E-08	4.0E-07	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	2.4E-13	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.4E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16d
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.5E-10	5.8E-07	3.4E-07	NA
aluminum	3.9E-06	8.2E-03	4.7E-03	NA
antimony	6.1E-09	1.0E-05	6.0E-06	NA
arsenic	3.9E-09	NA	NA	NA
barium	5.7E-08	NA	NA	NA
beryllium	4.7E-10	1.4E-06	7.9E-07	NA
boron	NA	NA	NA	NA
cadmium	1.5E-09	2.7E-06	1.6E-06	NA
chromium vi	7.4E-09	1.3E-05	7.5E-06	NA
cobalt	3.9E-09	NA	NA	NA
copper	1.6E-08	1.3E-05	7.7E-07	NA
lead	3.1E-07	6.0E-05	3.5E-05	NA
magnesium	1.2E-05	1.7E-02	1.0E-02	NA
manganese	3.9E-07	NA	NA	NA
mercury	1.6E-10	NA	NA	NA
molybdenum	2.9E-09	8.0E-06	4.6E-06	NA
nickel	8.4E-09	1.5E-05	4.2E-07	NA
selenium	3.5E-10	7.8E-07	4.5E-07	NA
silver	2.9E-09	8.5E-06	NA	NA
thallium	1.1E-10	NA	NA	NA
uranium-total	1.0E-06	1.4E-05	7.9E-06	NA
vanadium	9.6E-09	NA	NA	NA
zinc	4.7E-08	6.1E-05	3.5E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.1E-12	5.0E-08	1.1E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.8E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	2.5E-12	NA	NA	NA
pyrene	NA	5.8E-08	1.0E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.2E-06	2.9E-09	6.8E-08	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	5.9E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.0E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16e
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.9E-10	4.3E-07	2.5E-07	NA
aluminum	3.7E-06	9.3E-03	5.3E-03	NA
antimony	7.2E-09	NA	NA	NA
arsenic	4.5E-09	NA	NA	NA
barium	6.1E-08	9.7E-05	5.6E-05	NA
beryllium	4.7E-10	1.7E-06	9.6E-07	NA
boron	NA	NA	NA	NA
cadmium	1.5E-09	1.3E-06	7.3E-07	NA
chromium vi	7.0E-09	NA	NA	NA
cobalt	3.9E-09	NA	NA	NA
copper	1.1E-08	1.3E-05	7.7E-07	NA
lead	1.2E-07	NA	NA	NA
magnesium	1.0E-05	NA	NA	NA
manganese	4.1E-07	1.2E-03	7.0E-04	NA
mercury	1.7E-10	NA	NA	NA
molybdenum	2.7E-09	NA	NA	NA
nickel	8.4E-09	NA	NA	NA
selenium	4.3E-10	NA	NA	NA
silver	2.9E-09	4.7E-07	NA	NA
thallium	1.1E-10	NA	NA	NA
uranium-total	1.1E-06	9.3E-05	5.4E-05	NA
vanadium	9.2E-09	NA	NA	NA
zinc	4.5E-08	8.3E-05	4.8E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.7E-12	6.8E-07	1.6E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.2E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.9E-07	3.2E-06	NA
methylene chloride	1.8E-12	NA	NA	NA
pyrene	NA	1.5E-07	2.5E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	1.1E-07	1.9E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.4E-06	2.0E-09	4.5E-08	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	5.5E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.2E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16f
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.3E-10	NA	NA	NA
aluminum	7.2E-06	9.7E-03	5.6E-03	NA
antimony	2.2E-08	3.0E-05	1.7E-05	NA
arsenic	1.4E-08	9.8E-06	5.6E-07	NA
barium	7.8E-08	6.9E-05	3.9E-05	NA
beryllium	7.0E-10	7.3E-07	4.2E-07	NA
boron	NA	NA	NA	NA
cadmium	4.3E-09	5.7E-06	3.3E-06	NA
chromium vi	1.4E-08	1.5E-05	8.7E-06	NA
cobalt	7.8E-09	NA	NA	NA
copper	1.8E-08	1.8E-05	1.1E-06	NA
lead	5.7E-08	1.9E-05	1.1E-05	NA
magnesium	1.7E-05	NA	NA	NA
manganese	8.8E-07	NA	NA	NA
mercury	1.4E-10	NA	NA	NA
molybdenum	4.1E-09	5.1E-06	2.9E-06	NA
nickel	1.9E-08	2.2E-05	6.3E-07	NA
selenium	6.5E-10	8.2E-07	4.7E-07	NA
silver	7.2E-09	4.4E-06	NA	NA
thallium	3.1E-10	NA	NA	NA
uranium-total	3.3E-07	7.9E-05	4.5E-05	NA
vanadium	1.8E-08	2.4E-05	1.4E-06	NA
zinc	7.2E-08	7.8E-05	4.5E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.7E-12	3.6E-06	8.3E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.5E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.4E-06	4.2E-05	NA
methylene chloride	2.5E-12	2.7E-08	4.7E-07	NA
pyrene	NA	2.6E-06	4.6E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	6.7E-06	1.1E-04	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	9.8E-06	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	5.3E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	1.7E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-16g
INTAKES FOR TOXICANTS FOR GROUNDSKEEPER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	4.5E-10	1.9E-06	1.1E-06	NA
aluminum	5.7E-06	8.1E-03	4.7E-03	NA
antimony	9.0E-09	4.0E-06	2.3E-06	NA
arsenic	5.9E-09	1.3E-05	7.5E-07	NA
barium	7.6E-08	8.7E-05	5.0E-05	NA
beryllium	6.3E-10	7.1E-07	4.1E-07	NA
boron	NA	NA	NA	NA
cadmium	2.3E-09	NA	NA	NA
chromium vi	1.1E-08	4.2E-05	2.4E-05	NA
cobalt	5.7E-09	NA	NA	NA
copper	2.9E-08	1.8E-05	1.0E-06	NA
lead	7.2E-07	2.1E-03	1.2E-03	NA
magnesium	1.9E-05	NA	NA	NA
manganese	5.7E-07	9.1E-04	5.2E-04	NA
mercury	2.2E-10	6.2E-06	1.8E-05	NA
molybdenum	4.9E-09	8.3E-06	4.8E-06	NA
nickel	1.2E-08	NA	NA	NA
selenium	4.1E-10	NA	NA	NA
silver	4.7E-09	NA	NA	NA
thallium	1.6E-10	NA	NA	NA
uranium-total	1.0E-06	1.8E-05	1.1E-05	NA
vanadium	1.4E-08	NA	NA	NA
zinc	6.8E-08	8.5E-05	4.9E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.5E-12	6.1E-08	1.4E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
[illegible]methane	NA	NA	NA	NA
[illegible]m	2.2E-14	NA	NA	NA
[illegible]oroethane	NA	NA	NA	NA
[illegible]loroethene	NA	NA	NA	NA
[illegible]chloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	3.3E-12	NA	NA	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	6.3E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.0E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-17a
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+M}	2.2E-02	3.1E+01	NA	5.6E-01	NA	NA	NA	NA	NA
Np_{237+D}	1.0E-02	1.3E+01	NA	2.3E-01	NA	NA	NA	NA	NA
Pu_{238}	2.9E-01	1.4E+02	NA	2.4E+00	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.0E-02	3.8E+01	NA	6.7E-01	NA	NA	NA	NA	NA
Ra_{226+D}	5.7E+00	8.5E+01	NA	1.5E+00	NA	NA	NA	NA	NA
Ru_{106}	2.3E-02	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	5.0E-02	5.4E+01	NA	9.6E-01	NA	NA	NA	NA	NA
Tc_{99}	2.7E-01	1.9E+02	NA	3.3E+00	NA	NA	NA	NA	NA
Th_{230}	1.3E+01	2.2E+03	NA	3.9E+01	NA	NA	NA	NA	NA
Th_{232+D}	9.5E-01	9.3E+02	NA	1.7E+01	NA	NA	NA	NA	NA
U_{234}	3.2E+01	1.5E+04	NA	2.7E+02	NA	NA	NA	NA	NA
$U_{235/236}$	2.7E+00	1.3E+03	NA	2.3E+01	NA	NA	NA	NA	NA
U_{238+D}	3.5E+01	1.9E+04	NA	3.4E+02	NA	NA	NA	NA	NA
Rn_{222+D}	9.0E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.2E-10	2.8E-07	1.1E-07	NA	NA	NA	NA	NA	NA
beryllium	2.4E-11	3.0E-08	1.2E-07	NA	NA	NA	NA	NA	NA
cadmium	9.3E-11	1.3E-07	5.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.6E-10	7.0E-07	2.8E-06	NA	NA	NA	NA	NA	NA
nickel	5.2E-10	6.5E-07	1.3E-07	NA	NA	NA	NA	NA	NA
benzene	2.2E-16	6.7E-11	1.3E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.5E-13	7.3E-09	1.2E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.0E-13	3.8E-09	4.5E-07	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.5E-15	2.4E-10	2.8E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.0E-10	1.2E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	1.5E-12	1.7E-10	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E-13	4.6E-10	5.5E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	2.7E-13	1.1E-08	1.3E-06	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.9E-08	5.6E-10	8.9E-08	NA	NA	NA	NA	NA	NA
trichloroethene	1.4E-07	5.4E-10	6.4E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.3E-12	3.5E-08	4.2E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.4E-12	2.9E-08	3.5E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E-12	3.1E-08	3.7E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E-12	2.5E-08	2.9E-06	NA	NA	NA	NA	NA	NA
chrysene	1.3E-12	3.3E-08	3.9E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.2E-13	9.1E-09	1.1E-06	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.5E-13	2.4E-08	2.8E-06	NA	NA	NA	NA	NA	NA
aroclor-1254	2.7E-12	5.8E-08	1.4E-06	NA	NA	NA	NA	NA	NA
aroclor-1260	2.6E-14	1.4E-08	3.3E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	5.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	6.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	2.3E-13	2.8E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.0E-16	8.0E-13	9.6E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.6E-17	9.5E-13	1.1E-11	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-17b
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+M}	2.6E-03	2.7E+01	NA	4.8E-01	NA	NA	NA	NA	NA
Np_{237+D}	6.7E-04	2.8E+01	NA	5.0E-01	NA	NA	NA	NA	NA
Pu_{238}	1.6E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.9E-03	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+D}	5.4E-01	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	3.0E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	4.5E-03	4.9E+01	NA	8.6E-01	NA	NA	NA	NA	NA
Tc_{99}	3.4E-02	5.6E+01	NA	9.9E-01	NA	NA	NA	NA	NA
Th_{230}	5.8E-01	6.1E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{232+D}	6.3E-02	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.7E+00	1.4E+02	NA	2.5E+00	NA	NA	NA	NA	NA
$U_{235/236}$	1.5E-01	2.4E+01	NA	4.3E-01	NA	NA	NA	NA	NA
U_{238+D}	2.0E+00	1.8E+02	NA	3.1E+00	NA	NA	NA	NA	NA
Rn_{222+D}	1.4E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	6.1E-12	4.1E-08	1.6E-07	NA	NA	NA	NA	NA	NA
cadmium	3.4E-11	4.3E-08	1.7E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.1E-10	3.6E-07	1.4E-06	NA	NA	NA	NA	NA	NA
nickel	1.5E-10	4.3E-07	8.6E-08	NA	NA	NA	NA	NA	NA
benzene	7.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.1E-14	1.5E-08	2.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	7.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.9E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.4E-07	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.4E-07	1.0E-10	1.2E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E-13	1.2E-09	1.5E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E-13	1.4E-09	1.7E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.0E-13	1.5E-09	1.8E-07	NA	NA	NA	NA	NA	NA
chrysene	2.0E-13	2.0E-09	2.3E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	1.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	9.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	9.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.9E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-17c
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	9.6E-03	2.8E+01	NA	4.9E-01	NA	NA	NA	NA	NA
Np_{237+d}	2.2E-03	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	5.3E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.2E-02	9.0E+00	NA	1.6E-01	NA	NA	NA	NA	NA
Ra_{224+d}	7.2E+00	1.5E+01	NA	2.6E-01	NA	NA	NA	NA	NA
Ru_{106}	4.2E-03	8.7E+01	NA	1.6E+00	NA	NA	NA	NA	NA
Sr_{90+d}	3.1E-02	9.0E+01	NA	1.6E+00	NA	NA	NA	NA	NA
Tc_{99}	3.0E-01	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.6E+01	6.7E+01	NA	1.2E+00	NA	NA	NA	NA	NA
$Th_{232+104}$	4.9E-01	8.0E+02	NA	1.4E+01	NA	NA	NA	NA	NA
U_{234}	9.8E+00	7.3E+01	NA	1.3E+00	NA	NA	NA	NA	NA
$U_{235/236}$	7.2E-01	4.3E+02	NA	7.7E+00	NA	NA	NA	NA	NA
U_{238+2d}	9.7E+00	9.3E+01	NA	1.7E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	5.1E+04	6.4E+03	NA	1.1E+02	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.4E-11	2.5E-08	9.8E-08	NA	NA	NA	NA	NA	NA
cadmium	5.6E-11	6.1E-08	2.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.4E-10	4.0E-07	1.6E-06	NA	NA	NA	NA	NA	NA
nickel	2.8E-10	5.2E-07	1.0E-07	NA	NA	NA	NA	NA	NA
benzene	3.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-13	2.4E-09	3.9E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	9.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E-13	8.4E-10	1.0E-07	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	7.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	6.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.6E-08	4.5E-10	7.1E-08	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E-07	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	9.4E-13	9.4E-09	1.1E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E-12	7.3E-09	8.7E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.1E-12	2.5E-08	3.0E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E-12	4.5E-09	5.3E-07	NA	NA	NA	NA	NA	NA
chrysene	8.7E-13	1.5E-08	1.8E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.8E-13	1.0E-09	1.2E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	7.2E-13	3.7E-09	4.4E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	1.4E-12	3.7E-10	8.9E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	4.1E-14	3.4E-09	8.2E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	3.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	8.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.2E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-17d
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	4.3E-03	1.8E+01	NA	3.2E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E-03	NA	NA	NA	NA	NA	7.6E-01	NA	1.4E-02
Pu_{238}	7.2E-02	NA	NA	NA	NA	NA	1.1E+01	NA	2.1E-01
$Pu_{239/240}$	8.5E-03	2.1E+01	NA	3.7E-01	NA	NA	4.3E+00	NA	7.9E-02
Ra_{226+5d}	1.1E+00	NA	NA	NA	NA	NA	3.7E+02	NA	6.7E+00
Ru_{106}	2.1E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.1E-02	7.4E+01	NA	1.3E+00	NA	NA	1.3E+00	NA	2.4E-02
Tc_{99}	9.0E-02	NA	NA	NA	NA	NA	1.9E+01	NA	3.5E-01
Th_{230}	4.1E+00	6.2E+01	NA	1.1E+00	NA	NA	5.5E+02	NA	1.0E+01
$Th_{232+10d}$	2.7E-01	NA	NA	NA	NA	NA	4.1E+01	NA	7.6E-01
U_{234}	7.6E+00	2.3E+02	NA	4.1E+00	3.3E+01	NA	2.3E+03	NA	4.1E+01
$U_{235/236}$	5.8E-01	2.8E+01	NA	4.9E-01	NA	NA	1.5E+02	NA	2.7E+00
U_{238+2d}	8.1E+00	1.6E+02	NA	2.9E+00	3.7E+01	NA	2.6E+03	NA	4.8E+01
Rn_{222+4d}	6.1E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.1E-11	NA	NA	NA	1.1E-07	1.6E-08	3.3E-08	2.2E-08	NA
beryllium	7.3E-12	3.6E-08	1.4E-07	NA	NA	NA	4.9E-09	3.3E-08	NA
cadmium	2.3E-11	7.1E-08	2.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.2E-10	3.4E-07	1.3E-06	NA	NA	NA	NA	NA	NA
nickel	1.3E-10	3.8E-07	7.6E-08	NA	NA	NA	NA	NA	NA
benzene	4.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.4E-14	1.3E-09	2.1E-09	NA	1.2E-06	7.1E-05	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	1.1E-11	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.0E-09	2.1E-07	NA
methylene chloride	4.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	2.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	7.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.8E-08	7.6E-11	1.2E-08	NA	NA	NA	NA	NA	NA
trichloroethene	3.7E-08	5.1E-11	6.1E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	5.5E-13	NA	NA	NA	NA	NA	3.5E-09	1.4E-07	NA
aroclor-1260	4.9E-15	NA	NA	NA	NA	NA	1.3E-09	5.3E-08	NA
4,4-ddt	9.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.7E-16	NA	NA	NA	NA	NA	1.2E-12	2.4E-10	NA
dieldrin	3.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.0E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-17e
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation								
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	4.4E-03	2.7E+01	NA	4.8E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.7E-03	NA	NA	NA	4.3E+00	NA	1.3E+00	NA	2.3E-02
Pu_{238}	8.5E-02	NA	NA	NA	1.3E+00	NA	6.1E+00	NA	1.1E-01
$Pu_{239/240}$	9.9E-03	NA	NA	NA	5.0E-01	NA	2.4E+00	NA	4.4E-02
Ra_{226+8d}	9.0E-01	NA	NA	NA	1.0E+02	NA	2.0E+02	NA	3.6E+00
Ru_{106}	3.5E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.0E-02	5.6E+01	NA	9.9E-01	2.6E+01	NA	1.0E+00	NA	1.8E-02
Tc_{99}	5.4E-02	4.5E+01	NA	8.0E-01	3.2E+04	NA	1.6E+01	NA	2.9E-01
Th_{230}	4.3E+00	8.0E+01	NA	1.4E+00	1.9E+01	NA	3.4E+02	NA	6.1E+00
$Th_{232+10d}$	2.3E-01	NA	NA	NA	1.4E+00	NA	2.8E+01	NA	5.1E-01
U_{234}	8.1E+00	6.7E+02	NA	1.2E+01	1.8E+04	NA	1.2E+03	NA	2.2E+01
$U_{235/236}$	6.7E-01	8.5E+01	NA	1.5E+00	1.1E+03	NA	8.2E+01	NA	1.5E+00
U_{238+2d}	9.0E+00	1.3E+03	NA	2.2E+01	2.1E+04	NA	1.7E+03	NA	3.0E+01
Rn_{222+4d}	4.7E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.0E-11	NA	NA	NA	5.7E-08	8.3E-09	6.2E-08	4.2E-08	NA
beryllium	7.3E-12	4.3E-08	1.7E-07	NA	7.5E-10	1.1E-10	4.6E-09	3.1E-08	NA
cadmium	2.3E-11	3.3E-08	1.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-13	1.8E-08	2.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	1.1E-09	2.4E-09	2.5E-12	5.1E-10	NA
carbazole	1.5E-14	1.8E-10	2.1E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	9.8E-09	1.5E-08	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	4.8E-07	1.3E-06	5.5E-10	1.1E-07	NA
methylene chloride	2.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	2.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	6.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E-08	5.1E-11	8.1E-09	NA	NA	NA	NA	NA	NA
trichloroethene	4.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.2E-13	1.7E-09	2.0E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E-13	1.6E-09	1.9E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.5E-13	1.7E-09	2.0E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.9E-13	2.0E-09	2.3E-07	NA	NA	NA	NA	NA	NA
chrysene	2.4E-13	2.2E-09	2.7E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.6E-13	1.3E-09	1.5E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	5.2E-13	NA	NA	NA	1.2E-10	6.5E-08	1.9E-09	7.5E-08	NA
aroclor-1260	4.0E-15	NA	NA	NA	3.6E-11	1.3E-07	6.5E-10	2.6E-08	NA
4,4-ddt	8.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.9E-16	NA	NA	NA	6.9E-11	7.6E-09	NA	NA	NA
dieldrin	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.9E-18	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-17f
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, WILDLIFE RESERVE WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	4.0E-03	3.8E+01	NA	6.8E-01	NA	NA	NA	NA	NA
Np_{237+1d}	1.5E-03	3.8E+01	NA	6.7E-01	1.6E+01	NA	1.3E+00	NA	2.3E-02
Pu_{238}	2.2E-02	1.0E+01	NA	1.9E-01	NA	NA	1.1E+00	NA	1.9E-02
$Pu_{239/240}$	4.9E-03	1.0E+01	NA	1.9E-01	1.8E+01	NA	5.8E-01	NA	1.1E-02
Ra_{226+8d}	1.1E+00	1.2E+03	NA	2.1E+01	NA	NA	3.1E+01	NA	5.6E-01
Ru_{106}	9.9E-03	1.1E+02	NA	1.9E+00	NA	NA	NA	NA	NA
Sr_{90+1d}	8.1E-03	5.2E+01	NA	9.3E-01	NA	NA	7.0E-01	NA	1.3E-02
Tc_{99}	4.1E-02	4.2E+01	NA	7.4E-01	NA	NA	1.2E+01	NA	2.1E-01
Th_{230}	1.5E+00	1.2E+03	NA	2.2E+01	5.5E+01	NA	1.2E+02	NA	2.3E+00
$Th_{232+10d}$	9.4E-02	8.8E+01	NA	1.6E+00	NA	NA	1.5E+01	NA	2.7E-01
U_{234}	2.2E+00	1.1E+03	NA	2.0E+01	2.6E+04	NA	1.2E+02	NA	2.2E+00
$U_{235/236}$	2.1E-01	4.9E+01	NA	8.6E-01	9.1E+02	NA	1.6E+01	NA	2.9E-01
U_{238+2d}	2.6E+00	2.5E+03	NA	4.4E+01	2.6E+04	NA	7.2E+02	NA	1.3E+01
Rn_{222+4d}	1.5E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.1E-10	2.5E-07	1.0E-07	NA	6.8E-08	9.9E-09	6.2E-08	4.2E-08	NA
beryllium	1.1E-11	1.9E-08	7.5E-08	NA	NA	NA	4.4E-09	2.9E-08	NA
cadmium	6.7E-11	1.5E-07	5.9E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.2E-10	3.9E-07	1.6E-06	NA	2.3E-07	6.6E-08	NA	NA	NA
nickel	3.0E-10	5.7E-07	1.1E-07	NA	5.4E-07	7.9E-09	NA	NA	NA
benzene	4.6E-17	7.6E-11	1.5E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.8E-14	9.4E-08	1.5E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	1.3E-12	2.6E-10	NA
carbazole	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	4.1E-11	8.2E-09	NA
[illegible]	4.0E-14	7.1E-10	8.5E-08	NA	NA	NA	NA	NA	NA
[illegible]	9.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	9.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	1.5E-07	NA	NA	NA	4.8E-06	8.8E-05	NA	NA	NA
[illegible]ethylene	3.0E-07	1.5E-10	1.8E-08	NA	3.6E-07	1.7E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E-13	3.3E-08	3.9E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.3E-13	2.5E-08	3.0E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.3E-13	6.1E-08	7.3E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.2E-13	1.6E-09	1.9E-07	NA	NA	NA	NA	NA	NA
chrysene	2.0E-13	2.8E-08	3.3E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.4E-13	1.0E-09	1.2E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	2.7E-13	3.6E-10	8.5E-09	NA	NA	NA	2.6E-10	1.1E-08	NA
aroclor-1260	5.5E-15	NA	NA	NA	NA	NA	1.2E-11	4.7E-10	NA
4,4-ddt	8.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	4.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.7E-17	2.3E-11	2.7E-10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18a
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.2E-11	2.2E-08	8.7E-08	NA	NA	NA	NA	NA	NA
aluminum	2.2E-07	3.1E-04	1.2E-03	NA	NA	NA	NA	NA	NA
antimony	5.0E-10	6.0E-07	2.4E-06	NA	NA	NA	NA	NA	NA
arsenic	2.2E-10	2.8E-07	1.1E-07	NA	NA	NA	NA	NA	NA
barium	4.0E-09	5.9E-06	2.4E-05	NA	NA	NA	NA	NA	NA
beryllium	2.4E-11	3.0E-08	1.2E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	9.3E-11	1.3E-07	5.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.6E-10	7.0E-07	2.8E-06	NA	NA	NA	NA	NA	NA
cobalt	2.3E-10	3.0E-07	1.2E-06	NA	NA	NA	NA	NA	NA
copper	7.7E-10	1.1E-06	4.3E-07	NA	NA	NA	NA	NA	NA
lead	8.8E-09	3.1E-06	1.2E-05	NA	NA	NA	NA	NA	NA
magnesium	5.8E-07	1.0E-04	4.1E-04	NA	NA	NA	NA	NA	NA
manganese	2.1E-08	1.5E-05	5.8E-05	NA	NA	NA	NA	NA	NA
mercury	1.3E-11	1.7E-08	3.4E-07	NA	NA	NA	NA	NA	NA
molybdenum	1.9E-10	1.9E-07	7.7E-07	NA	NA	NA	NA	NA	NA
nickel	5.2E-10	6.5E-07	1.3E-07	NA	NA	NA	NA	NA	NA
selenium	2.9E-11	2.2E-08	8.8E-08	NA	NA	NA	NA	NA	NA
silver	2.0E-10	1.2E-07	NA	NA	NA	NA	NA	NA	NA
thallium	7.2E-12	1.2E-08	4.6E-08	NA	NA	NA	NA	NA	NA
uranium-total	6.3E-08	2.4E-05	9.3E-05	NA	NA	NA	NA	NA	NA
vanadium	5.5E-10	7.0E-07	2.8E-07	NA	NA	NA	NA	NA	NA
zinc	3.0E-09	3.6E-06	1.4E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.5E-13	7.3E-09	1.2E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.5E-15	2.4E-10	2.8E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	1.3E-10	1.5E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.0E-10	1.2E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	6.9E-08	8.2E-06	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E-13	4.6E-10	5.5E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	5.3E-08	6.3E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	6.1E-08	7.3E-06	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.9E-08	5.6E-10	8.9E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	5.2E-10	6.2E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	5.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18b
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.3E-12	1.4E-08	5.4E-08	NA	NA	NA	NA	NA	NA
aluminum	5.8E-08	2.5E-04	1.0E-03	NA	NA	NA	NA	NA	NA
antimony	1.2E-10	8.2E-08	3.2E-07	NA	NA	NA	NA	NA	NA
arsenic	5.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
barium	6.4E-10	2.6E-06	1.0E-05	NA	NA	NA	NA	NA	NA
beryllium	6.1E-12	4.1E-08	1.6E-07	NA	NA	NA	NA	NA	NA
boron	NA	3.6E-07	1.4E-06	NA	NA	NA	NA	NA	NA
cadmium	3.4E-11	4.3E-08	1.7E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.1E-10	3.6E-07	1.4E-06	NA	NA	NA	NA	NA	NA
cobalt	6.7E-11	3.1E-07	1.2E-06	NA	NA	NA	NA	NA	NA
copper	1.6E-10	4.2E-07	1.7E-07	NA	NA	NA	NA	NA	NA
lead	6.7E-10	5.8E-07	2.3E-06	NA	NA	NA	NA	NA	NA
magnesium	1.9E-07	4.5E-04	1.8E-03	NA	NA	NA	NA	NA	NA
manganese	5.5E-09	2.4E-05	9.6E-05	NA	NA	NA	NA	NA	NA
mercury	1.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.9E-11	3.0E-07	1.2E-06	NA	NA	NA	NA	NA	NA
nickel	1.5E-10	4.3E-07	8.6E-08	NA	NA	NA	NA	NA	NA
selenium	5.5E-12	2.0E-08	7.8E-08	NA	NA	NA	NA	NA	NA
silver	5.5E-11	9.9E-08	NA	NA	NA	NA	NA	NA	NA
thallium	2.7E-12	1.7E-08	6.8E-08	NA	NA	NA	NA	NA	NA
uranium-total	4.3E-09	3.8E-07	1.5E-06	NA	NA	NA	NA	NA	NA
vanadium	1.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.0E-09	1.7E-06	6.9E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.1E-14	1.5E-08	2.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	4.1E-09	4.9E-07	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	3.3E-09	3.9E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.4E-09	2.9E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.4E-07	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	9.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18c
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	6.8E-12	1.4E-08	5.5E-08	NA	NA	NA	NA	NA	NA
aluminum	1.1E-07	2.7E-04	1.1E-03	NA	NA	NA	NA	NA	NA
antimony	1.7E-10	1.3E-07	5.2E-07	NA	NA	NA	NA	NA	NA
arsenic	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.5E-09	3.4E-06	1.4E-05	NA	NA	NA	NA	NA	NA
beryllium	1.4E-11	2.5E-08	9.8E-08	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.6E-11	6.1E-08	2.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.4E-10	4.0E-07	1.6E-06	NA	NA	NA	NA	NA	NA
cobalt	1.2E-10	3.7E-07	1.5E-06	NA	NA	NA	NA	NA	NA
copper	5.0E-10	5.1E-07	2.0E-07	NA	NA	NA	NA	NA	NA
lead	4.9E-09	2.0E-06	7.9E-06	NA	NA	NA	NA	NA	NA
magnesium	3.6E-07	1.3E-03	5.0E-03	NA	NA	NA	NA	NA	NA
manganese	1.2E-08	4.7E-05	1.8E-04	NA	NA	NA	NA	NA	NA
mercury	4.4E-12	3.1E-09	6.1E-08	NA	NA	NA	NA	NA	NA
molybdenum	1.0E-10	2.9E-07	1.1E-06	NA	NA	NA	NA	NA	NA
nickel	2.8E-10	5.2E-07	1.0E-07	NA	NA	NA	NA	NA	NA
selenium	8.9E-12	1.4E-08	5.4E-08	NA	NA	NA	NA	NA	NA
silver	8.7E-11	3.3E-08	NA	NA	NA	NA	NA	NA	NA
thallium	4.3E-12	1.8E-08	7.2E-08	NA	NA	NA	NA	NA	NA
uranium-total	1.7E-08	6.1E-06	2.4E-05	NA	NA	NA	NA	NA	NA
vanadium	2.8E-10	7.9E-07	3.2E-07	NA	NA	NA	NA	NA	NA
zinc	2.9E-09	7.8E-06	3.1E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-13	2.4E-09	3.9E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.3E-08	1.5E-06	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E-13	8.4E-10	1.0E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	2.1E-08	2.5E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	6.8E-09	8.1E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.6E-08	4.5E-10	7.1E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18d
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	4.0E-12	1.5E-08	6.0E-08	NA	8.9E-07	3.8E-07	9.9E-10	6.7E-09	NA
aluminum	6.1E-08	2.1E-04	8.4E-04	NA	NA	NA	NA	NA	NA
antimony	9.4E-11	2.7E-07	1.1E-06	NA	NA	NA	9.5E-08	6.4E-07	NA
arsenic	6.1E-11	NA	NA	NA	6.3E-07	9.2E-08	1.9E-07	1.3E-07	NA
barium	8.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	7.3E-12	3.6E-08	1.4E-07	NA	NA	NA	2.8E-08	1.9E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.3E-11	7.1E-08	2.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.2E-10	3.4E-07	1.3E-06	NA	NA	NA	NA	NA	NA
cobalt	6.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.4E-10	3.5E-07	1.4E-07	NA	NA	NA	NA	NA	NA
lead	4.9E-09	1.6E-06	6.2E-06	NA	1.1E-05	6.7E-09	1.1E-05	7.3E-05	NA
magnesium	1.8E-07	4.5E-04	1.8E-03	NA	3.5E-03	5.1E-04	5.4E-04	3.6E-03	NA
manganese	6.1E-09	NA	NA	NA	4.8E-06	7.0E-07	3.0E-05	2.0E-04	NA
mercury	2.4E-12	NA	NA	NA	NA	NA	9.2E-09	3.1E-07	NA
molybdenum	4.6E-11	2.1E-07	8.3E-07	NA	NA	NA	NA	NA	NA
nickel	1.3E-10	3.8E-07	7.6E-08	NA	NA	NA	NA	NA	NA
selenium	5.5E-12	2.0E-08	8.1E-08	NA	1.2E-07	1.7E-08	NA	NA	NA
silver	4.6E-11	2.2E-07	NA	NA	NA	NA	NA	NA	NA
thallium	1.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.6E-08	3.6E-07	1.4E-06	NA	4.0E-06	5.9E-07	3.3E-05	2.2E-04	NA
vanadium	1.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.3E-10	1.6E-06	6.3E-06	NA	1.1E-06	1.0E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.4E-14	1.3E-09	2.1E-09	NA	6.7E-06	4.1E-04	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.6E-10	NA	NA
chloroform	2.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	6.2E-11	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	6.0E-09	1.2E-06	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.5E-09	1.8E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.8E-08	7.6E-11	1.2E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	9.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	6.9E-12	1.4E-09	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	1.7E-05	2.5E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	2.6E-05	3.7E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.0E-02	1.5E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18e
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.9E-12	1.1E-08	4.5E-08	NA	1.6E-05	6.8E-06	8.0E-10	5.4E-09	NA
aluminum	5.8E-08	2.4E-04	9.6E-04	NA	NA	NA	NA	NA	NA
antimony	1.1E-10	NA	NA	NA	1.7E-07	2.5E-08	2.3E-07	1.5E-06	NA
arsenic	7.0E-11	NA	NA	NA	3.3E-07	4.8E-08	3.6E-07	2.4E-07	NA
barium	9.4E-10	2.5E-06	1.0E-05	NA	NA	NA	NA	NA	NA
beryllium	7.3E-12	4.3E-08	1.7E-07	NA	4.4E-09	6.4E-10	2.7E-08	1.8E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.3E-11	3.3E-08	1.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	6.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.7E-10	3.5E-07	1.4E-07	NA	NA	NA	NA	NA	NA
lead	1.8E-09	NA	NA	NA	7.3E-07	4.3E-10	5.6E-06	3.7E-05	NA
magnesium	1.6E-07	NA	NA	NA	2.4E-02	3.5E-03	4.3E-04	2.9E-03	NA
manganese	6.4E-09	3.2E-05	1.3E-04	NA	3.3E-05	4.8E-06	2.2E-05	1.5E-04	NA
mercury	2.7E-12	NA	NA	NA	1.8E-07	2.7E-08	6.9E-09	2.3E-07	NA
molybdenum	4.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA
selenium	6.7E-12	NA	NA	NA	NA	NA	NA	NA	NA
silver	4.6E-11	1.2E-08	NA	NA	NA	NA	NA	NA	NA
thallium	1.7E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.8E-08	2.4E-06	9.7E-06	NA	2.3E-04	3.4E-05	2.0E-05	1.4E-04	NA
vanadium	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.0E-10	2.2E-06	8.6E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-13	1.8E-08	2.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.5E-09	1.4E-08	1.5E-11	3.0E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	7.9E-11	NA	NA
chloroform	1.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	5.7E-08	8.7E-08	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	2.8E-06	7.4E-06	3.2E-09	6.5E-07	NA
fluoranthene	NA	4.8E-09	5.8E-07	NA	NA	NA	NA	NA	NA
methylene chloride	2.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	3.8E-09	4.6E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	1.6E-07	2.8E-07	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.8E-09	3.3E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E-08	5.1E-11	8.1E-09	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	8.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	4.0E-10	4.5E-08	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-18f
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, WILDLIFE RESERVE WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.7E-12	NA	NA	NA	3.2E-07	1.4E-07	6.1E-10	4.1E-09	NA
aluminum	1.1E-07	2.5E-04	1.0E-03	NA	1.7E-03	2.4E-04	NA	NA	NA
antimony	3.4E-10	7.7E-07	3.1E-06	NA	NA	NA	2.3E-07	1.5E-06	NA
arsenic	2.1E-10	2.5E-07	1.0E-07	NA	3.9E-07	5.8E-08	3.6E-07	2.4E-07	NA
barium	1.2E-09	1.8E-06	7.1E-06	NA	2.6E-05	3.8E-06	NA	NA	NA
beryllium	1.1E-11	1.9E-08	7.5E-08	NA	NA	NA	2.5E-08	1.7E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	6.7E-11	1.5E-07	5.9E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.2E-10	3.9E-07	1.6E-06	NA	1.3E-06	3.9E-07	NA	NA	NA
cobalt	1.2E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.8E-10	4.8E-07	1.9E-07	NA	2.3E-06	3.4E-07	NA	NA	NA
lead	8.8E-10	4.9E-07	2.0E-06	NA	1.1E-06	6.2E-10	5.0E-07	3.3E-06	NA
magnesium	2.7E-07	NA	NA	NA	7.6E-03	1.1E-03	3.2E-04	2.1E-03	NA
manganese	1.4E-08	NA	NA	NA	9.6E-05	1.4E-05	1.6E-05	1.0E-04	NA
mercury	2.2E-12	NA	NA	NA	NA	NA	4.7E-09	1.6E-07	NA
molybdenum	6.4E-11	1.3E-07	5.3E-07	NA	NA	NA	NA	NA	NA
nickel	3.0E-10	5.7E-07	1.1E-07	NA	3.1E-06	4.6E-08	NA	NA	NA
selenium	1.0E-11	2.1E-08	8.5E-08	NA	NA	NA	NA	NA	NA
silver	1.1E-10	1.2E-07	NA	NA	NA	NA	NA	NA	NA
thallium	4.9E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	5.2E-09	2.1E-06	8.2E-06	NA	1.6E-05	2.3E-06	8.3E-06	5.6E-05	NA
vanadium	2.8E-10	6.2E-07	2.5E-07	NA	3.7E-06	5.4E-07	NA	NA	NA
zinc	1.1E-09	2.0E-06	8.1E-06	NA	4.5E-06	3.9E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.8E-14	9.4E-08	1.5E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.4E-12	1.5E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carb[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	N[illegible]
[illegible]	2.3E-16	NA	NA	NA	NA	NA	NA	NA	N[illegible]
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	7.8E-06	1.0E-05	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	2.4E-10	4.8E-08	NA
[illegible]ethylene chloride	NA	6.4E-08	7.6E-06	NA	NA	NA	NA	NA	NA
[illegible]ene	4.0E-14	7.1E-10	8.5E-08	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	6.9E-08	8.2E-06	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	1.7E-07	2.1E-05	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	1.5E-07	NA	NA	NA	2.8E-05	5.1E-04	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	8.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	5.2E-05	7.6E-06	NA	NA	NA
fluoride	NA	NA	NA	NA	3.1E-04	4.5E-05	NA	NA	NA
chloride	NA	NA	NA	NA	6.5E-05	9.5E-06	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA
	NA	NA	NA	NA	1.2E-02	1.7E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19a
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation								
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	2.5E-02	3.6E+01	NA	6.3E-01	NA	NA	NA	NA	NA
Np_{237+d}	1.1E-02	1.5E+01	NA	2.6E-01	NA	NA	NA	NA	NA
Pu_{238}	3.3E-01	1.6E+02	NA	2.7E+00	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.5E-02	4.3E+01	NA	7.6E-01	NA	NA	NA	NA	NA
Ra_{226+d}	6.5E+00	9.7E+01	NA	1.7E+00	NA	NA	NA	NA	NA
Ru_{106}	2.6E-02	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	5.6E-02	6.2E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Tc_{99}	3.0E-01	2.1E+02	NA	3.8E+00	NA	NA	NA	NA	NA
Th_{230}	1.4E+01	2.5E+03	NA	4.5E+01	NA	NA	NA	NA	NA
Th_{232+d}	1.1E+00	1.1E+03	NA	1.9E+01	NA	NA	NA	NA	NA
U_{234}	3.7E+01	1.7E+04	NA	3.1E+02	NA	NA	NA	NA	NA
$U_{235/236}$	3.0E+00	1.5E+03	NA	2.6E+01	NA	NA	NA	NA	NA
U_{238+d}	4.0E+01	2.2E+04	NA	3.9E+02	NA	NA	NA	NA	NA
Rn_{222+d}	1.0E+05	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.9E-10	3.7E-07	1.3E-07	NA	NA	NA	NA	NA	NA
beryllium	3.2E-11	4.0E-08	1.4E-07	NA	NA	NA	NA	NA	NA
cadmium	1.2E-10	1.8E-07	6.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-10	9.3E-07	3.3E-06	NA	NA	NA	NA	NA	NA
nickel	6.8E-10	8.7E-07	1.5E-07	NA	NA	NA	NA	NA	NA
benzene	2.9E-16	8.9E-11	1.6E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.3E-13	9.7E-09	1.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.3E-13	5.1E-09	5.4E-07	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-15	3.1E-10	3.3E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.4E-10	1.5E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	1.9E-12	2.1E-10	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-13	6.1E-10	6.5E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.5E-13	1.4E-08	1.5E-06	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	5.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.0E-08	7.5E-10	1.1E-07	NA	NA	NA	NA	NA	NA
trichloroethene	1.8E-07	7.1E-10	7.6E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.7E-12	4.6E-08	4.9E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E-12	3.9E-08	4.1E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E-12	4.1E-08	4.4E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E-12	3.3E-08	3.5E-06	NA	NA	NA	NA	NA	NA
chrysene	1.7E-12	4.4E-08	4.6E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.5E-13	1.2E-08	1.3E-06	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.2E-12	3.2E-08	3.4E-06	NA	NA	NA	NA	NA	NA
aroclor-1254	3.5E-12	7.7E-08	1.6E-06	NA	NA	NA	NA	NA	NA
aroclor-1260	3.5E-14	1.8E-08	3.9E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	6.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	7.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	3.1E-13	3.3E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.6E-16	1.1E-12	1.1E-11	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.3E-17	1.3E-12	1.3E-11	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19b
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+1d}	2.9E-03	3.1E+01	NA	5.4E-01	NA	NA	NA	NA	NA
Np_{237+1d}	7.6E-04	3.2E+01	NA	5.7E-01	NA	NA	NA	NA	NA
Pu_{238}	1.8E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.4E-03	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	6.1E-01	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	3.4E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.1E-03	5.6E+01	NA	9.8E-01	NA	NA	NA	NA	NA
Tc_{99}	3.8E-02	6.4E+01	NA	1.1E+00	NA	NA	NA	NA	NA
Th_{230}	6.6E-01	7.0E+01	NA	1.2E+00	NA	NA	NA	NA	NA
$Th_{232+10d}$	7.1E-02	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.9E+00	1.6E+02	NA	2.8E+00	NA	NA	NA	NA	NA
$U_{235/236}$	1.7E-01	2.8E+01	NA	4.9E-01	NA	NA	NA	NA	NA
U_{238+2d}	2.3E+00	2.0E+02	NA	3.6E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	1.6E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	8.0E-12	5.4E-08	1.9E-07	NA	NA	NA	NA	NA	NA
cadmium	4.4E-11	5.8E-08	2.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-10	4.8E-07	1.7E-06	NA	NA	NA	NA	NA	NA
nickel	2.0E-10	5.8E-07	1.0E-07	NA	NA	NA	NA	NA	NA
benzene	1.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.0E-14	2.0E-08	2.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	6.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.4E-07	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.4E-07	1.4E-10	1.4E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.1E-13	1.6E-09	1.7E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.1E-13	1.9E-09	2.0E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.7E-13	2.0E-09	2.2E-07	NA	NA	NA	NA	NA	NA
chrysene	2.6E-13	2.6E-09	2.8E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	2.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	1.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.5E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19c
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	1.1E-02	3.2E+01	NA	5.6E-01	NA	NA	NA	NA	NA
Np_{237+d}	2.5E-03	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	6.0E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.3E-02	1.0E+01	NA	1.8E-01	NA	NA	NA	NA	NA
Ra_{226+d}	8.2E+00	1.7E+01	NA	3.0E-01	NA	NA	NA	NA	NA
Ru_{106}	4.8E-03	1.0E+02	NA	1.8E+00	NA	NA	NA	NA	NA
Sr_{90+d}	3.5E-02	1.0E+02	NA	1.8E+00	NA	NA	NA	NA	NA
Tc_{99}	3.4E-01	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.8E+01	7.7E+01	NA	1.4E+00	NA	NA	NA	NA	NA
Th_{232+d}	5.6E-01	9.1E+02	NA	1.6E+01	NA	NA	NA	NA	NA
U_{234}	1.1E+01	8.3E+01	NA	1.5E+00	NA	NA	NA	NA	NA
$U_{235/236}$	8.2E-01	5.0E+02	NA	8.7E+00	NA	NA	NA	NA	NA
U_{238+d}	1.1E+01	1.1E+02	NA	1.9E+00	NA	NA	NA	NA	NA
Rn_{222+d}	5.8E+04	7.3E+03	NA	1.3E+02	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.8E-11	3.3E-08	1.2E-07	NA	NA	NA	NA	NA	NA
cadmium	7.3E-11	8.1E-08	2.9E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.1E-10	5.3E-07	1.9E-06	NA	NA	NA	NA	NA	NA
nickel	3.6E-10	6.9E-07	1.2E-07	NA	NA	NA	NA	NA	NA
benzene	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.2E-13	3.2E-09	4.6E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E-13	1.1E-09	1.2E-07	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	9.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	8.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.9E-08	6.0E-10	8.5E-08	NA	NA	NA	NA	NA	NA
trichloroethene	2.0E-07	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.2E-12	1.2E-08	1.3E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E-12	9.7E-09	1.0E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.4E-12	3.4E-08	3.6E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E-12	6.0E-09	6.3E-07	NA	NA	NA	NA	NA	NA
chrysene	1.1E-12	2.0E-08	2.1E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.0E-13	1.3E-09	1.4E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.5E-13	4.9E-09	5.2E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	1.8E-12	5.0E-10	1.1E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	5.3E-14	4.6E-09	9.7E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	4.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19d
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	4.8E-03	2.0E+01	NA	3.6E-01	NA	NA	NA	NA	NA
Np_{237+d}	1.6E-03	NA	NA	NA	NA	NA	7.6E-01	NA	1.4E-02
Pu_{238}	8.2E-02	NA	NA	NA	NA	NA	1.1E+01	NA	2.1E-01
$Pu_{239/240}$	9.7E-03	2.4E+01	NA	4.2E-01	NA	NA	4.3E+00	NA	7.9E-02
Ra_{226+d}	1.2E+00	NA	NA	NA	NA	NA	3.7E+02	NA	6.7E+00
Ru_{106}	2.4E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	1.2E-02	8.5E+01	NA	1.5E+00	NA	NA	1.3E+00	NA	2.4E-02
Tc_{99}	1.0E-01	NA	NA	NA	NA	NA	1.9E+01	NA	3.5E-01
Th_{230}	4.7E+00	7.1E+01	NA	1.3E+00	NA	NA	5.5E+02	NA	1.0E+01
Th_{232+d}	3.1E-01	NA	NA	NA	NA	NA	4.1E+01	NA	7.6E-01
U_{234}	8.7E+00	2.7E+02	NA	4.7E+00	3.3E+01	NA	2.3E+03	NA	4.1E+01
$U_{235/236}$	6.6E-01	3.2E+01	NA	5.6E-01	NA	NA	1.5E+02	NA	2.7E+00
U_{238+d}	9.2E+00	1.9E+02	NA	3.3E+00	3.7E+01	NA	2.6E+03	NA	4.8E+01
Rn_{222+d}	6.9E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	8.0E-11	NA	NA	NA	1.1E-07	1.6E-08	3.3E-08	2.2E-08	NA
beryllium	9.6E-12	4.7E-08	1.7E-07	NA	NA	NA	4.9E-09	3.3E-08	NA
cadmium	3.1E-11	9.5E-08	3.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-10	4.5E-07	1.6E-06	NA	NA	NA	NA	NA	NA
nickel	1.7E-10	5.1E-07	9.0E-08	NA	NA	NA	NA	NA	NA
benzene	5.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.4E-14	1.7E-09	2.5E-09	NA	1.2E-06	7.1E-05	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.9E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	N
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	N
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	1.1E-11	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.0E-09	2.1E-07	NA
methylene chloride	5.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E-08	1.0E-10	1.4E-08	NA	NA	NA	NA	NA	NA
trichloroethene	4.8E-08	6.8E-11	7.2E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	7.2E-13	NA	NA	NA	NA	NA	3.5E-09	1.4E-07	NA
aroclor-1260	6.4E-15	NA	NA	NA	NA	NA	1.3E-09	5.3E-08	NA
4,4-ddt	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E-16	NA	NA	NA	NA	NA	1.2E-12	2.4E-10	NA
dieldrin	4.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.3E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19e
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	4.9E-03	3.1E+01	NA	5.4E-01	NA	NA	NA	NA	NA
Np_{237+d}	1.9E-03	NA	NA	NA	4.3E+00	NA	1.3E+00	NA	2.3E-02
Pu_{238}	9.7E-02	NA	NA	NA	1.3E+00	NA	6.1E+00	NA	1.1E-01
$Pu_{239/240}$	1.1E-02	NA	NA	NA	5.0E-01	NA	2.4E+00	NA	4.4E-02
Ra_{226+d}	1.0E+00	NA	NA	NA	1.0E+02	NA	2.0E+02	NA	3.6E+00
Ru_{106}	3.9E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	1.2E-02	6.4E+01	NA	1.1E+00	2.6E+01	NA	1.0E+00	NA	1.8E-02
Tc_{99}	6.1E-02	5.2E+01	NA	9.1E-01	3.2E+04	NA	1.6E+01	NA	2.9E-01
Th_{230}	4.8E+00	9.2E+01	NA	1.6E+00	1.9E+01	NA	3.4E+02	NA	6.1E+00
Th_{232+d}	2.6E-01	NA	NA	NA	1.4E+00	NA	2.8E+01	NA	5.1E-01
U_{234}	9.2E+00	7.7E+02	NA	1.3E+01	1.8E+04	NA	1.2E+03	NA	2.2E+01
$U_{235/236}$	7.6E-01	9.8E+01	NA	1.7E+00	1.1E+03	NA	8.2E+01	NA	1.5E+00
U_{238+d}	1.0E+01	1.4E+03	NA	2.5E+01	2.1E+04	NA	1.7E+03	NA	3.0E+01
Rn_{222+d}	5.4E+03	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.2E-11	NA	NA	NA	5.7E-08	8.3E-09	6.2E-08	4.2E-08	NA
beryllium	9.6E-12	5.8E-08	2.0E-07	NA	7.5E-10	1.1E-10	4.6E-09	3.1E-08	NA
cadmium	3.1E-11	4.4E-08	1.6E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	4.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-13	2.4E-08	3.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	1.1E-09	2.4E-09	2.5E-12	5.1E-10	NA
carbazole	2.0E-14	2.4E-10	2.5E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	9.8E-09	1.5E-08	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	4.8E-07	1.3E-06	5.5E-10	1.1E-07	NA
methylene chloride	3.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	8.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.9E-08	6.8E-11	9.6E-09	NA	NA	NA	NA	NA	NA
trichloroethene	6.0E-08	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.9E-13	2.3E-09	2.4E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.1E-13	2.1E-09	2.2E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E-13	2.2E-09	2.4E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E-13	2.6E-09	2.8E-07	NA	NA	NA	NA	NA	NA
chrysene	3.1E-13	3.0E-09	3.2E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.2E-13	1.7E-09	1.8E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	6.8E-13	NA	NA	NA	1.2E-10	6.5E-08	1.9E-09	7.5E-08	NA
aroclor-1260	5.2E-15	NA	NA	NA	3.6E-11	1.3E-07	6.5E-10	2.6E-08	NA
4,4-ddt	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.4E-16	NA	NA	NA	6.9E-11	7.6E-09	NA	NA	NA
dieldrin	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.0E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19f
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	4.5E-03	4.4E+01	NA	7.7E-01	NA	NA	NA	NA	NA
Np_{237+d}	1.7E-03	4.3E+01	NA	7.6E-01	1.6E+01	NA	1.3E+00	NA	2.3E-02
Pu_{238}	2.4E-02	1.2E+01	NA	2.1E-01	NA	NA	1.1E+00	NA	1.9E-02
$Pu_{239/240}$	5.6E-03	1.2E+01	NA	2.1E-01	1.8E+01	NA	5.8E-01	NA	1.1E-02
Ra_{226+d}	1.3E+00	1.4E+03	NA	2.4E+01	NA	NA	3.1E+01	NA	5.6E-01
Ru_{106}	1.1E-02	1.2E+02	NA	2.2E+00	NA	NA	NA	NA	NA
Sr_{90+d}	9.2E-03	6.0E+01	NA	1.1E+00	NA	NA	7.0E-01	NA	1.3E-02
Tc_{99}	4.6E-02	4.8E+01	NA	8.4E-01	NA	NA	1.2E+01	NA	2.1E-01
Th_{230}	1.7E+00	1.4E+03	NA	2.5E+01	5.5E+01	NA	1.2E+02	NA	2.3E+00
Th_{232+d}	1.1E-01	1.0E+02	NA	1.8E+00	NA	NA	1.5E+01	NA	2.7E-01
U_{234}	2.4E+00	1.3E+03	NA	2.3E+01	2.6E+04	NA	1.2E+02	NA	2.2E+00
$U_{235/236}$	2.4E-01	5.6E+01	NA	9.8E-01	9.1E+02	NA	1.6E+01	NA	2.9E-01
U_{238+d}	2.9E+00	2.9E+03	NA	5.0E+01	2.6E+04	NA	7.2E+02	NA	1.3E+01
Rn_{222+d}	1.7E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.8E-10	3.4E-07	1.2E-07	NA	6.8E-08	9.9E-09	6.2E-08	4.2E-08	NA
beryllium	1.4E-11	2.5E-08	8.9E-08	NA	NA	NA	4.4E-09	2.9E-08	NA
cadmium	8.8E-11	2.0E-07	7.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.8E-10	5.2E-07	1.8E-06	NA	2.3E-07	6.6E-08	NA	NA	NA
nickel	3.9E-10	7.6E-07	1.3E-07	NA	5.4E-07	7.9E-09	NA	NA	NA
benzene	6.0E-17	1.0E-10	1.8E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.6E-14	1.3E-07	1.8E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	1.3E-12	2.6E-10	NA
carbazole	2.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloro[illegible]	3.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	4.1E-11	8.2E-09	NA
[illegible]	5.2E-14	9.5E-10	1.0E-07	NA	NA	NA	NA	NA	NA
[illegible]	1.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ethene	2.0E-07	NA	NA	NA	4.8E-06	8.8E-05	NA	NA	NA
[illegible]oroethene	3.9E-07	2.0E-10	2.2E-08	NA	3.6E-07	1.7E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.6E-13	4.4E-08	4.7E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E-13	3.3E-08	3.5E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.0E-13	8.1E-08	8.6E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.9E-13	2.1E-09	2.2E-07	NA	NA	NA	NA	NA	NA
chrysene	2.6E-13	3.7E-08	4.0E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.9E-13	1.4E-09	1.4E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	3.6E-13	4.7E-10	1.0E-08	NA	NA	NA	2.6E-10	1.1E-08	NA
aroclor-1260	7.2E-15	NA	NA	NA	NA	NA	1.2E-11	4.7E-10	NA
4,4-ddt	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	6.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	8.8E-17	3.1E-11	3.2E-10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-19g
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, UNDEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+bd}	5.1E-03	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.7E-03	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	7.6E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.7E-03	6.8E+01	NA	1.2E+00	NA	NA	NA	NA	NA
Ra_{226+bd}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	2.7E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.6E-02	6.7E+01	NA	1.2E+00	NA	NA	NA	NA	NA
Tc_{99}	1.9E-01	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	6.1E+00	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	9.2E+00	1.4E+02	NA	2.5E+00	NA	NA	NA	NA	NA
$U_{235/236}$	7.1E-01	3.2E+01	NA	5.7E-01	NA	NA	NA	NA	NA
U_{238+2d}	9.2E+00	1.1E+02	NA	1.9E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	1.0E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.2E-10	4.5E-07	1.6E-07	NA	NA	NA	NA	NA	NA
beryllium	1.3E-11	2.5E-08	8.8E-08	NA	NA	NA	NA	NA	NA
cadmium	4.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.3E-10	1.5E-06	5.1E-06	NA	NA	NA	NA	NA	NA
nickel	2.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	6.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	9.2E-14	2.1E-09	3.0E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.2E-08	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	7.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	8.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.6E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20a
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.5E-11	2.9E-08	1.0E-07	NA	NA	NA	NA	NA	NA
aluminum	2.9E-07	4.1E-04	1.5E-03	NA	NA	NA	NA	NA	NA
antimony	6.6E-10	8.0E-07	2.8E-06	NA	NA	NA	NA	NA	NA
arsenic	2.9E-10	3.7E-07	1.3E-07	NA	NA	NA	NA	NA	NA
barium	5.2E-09	7.9E-06	2.8E-05	NA	NA	NA	NA	NA	NA
beryllium	3.2E-11	4.0E-08	1.4E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.2E-10	1.8E-07	6.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-10	9.3E-07	3.3E-06	NA	NA	NA	NA	NA	NA
cobalt	3.0E-10	4.1E-07	1.4E-06	NA	NA	NA	NA	NA	NA
copper	1.0E-09	1.5E-06	5.2E-07	NA	NA	NA	NA	NA	NA
lead	1.2E-08	4.1E-06	1.5E-05	NA	NA	NA	NA	NA	NA
magnesium	7.6E-07	1.4E-04	4.9E-04	NA	NA	NA	NA	NA	NA
manganese	2.8E-08	2.0E-05	6.9E-05	NA	NA	NA	NA	NA	NA
mercury	1.7E-11	2.3E-08	4.0E-07	NA	NA	NA	NA	NA	NA
molybdenum	2.5E-10	2.6E-07	9.1E-07	NA	NA	NA	NA	NA	NA
nickel	6.8E-10	8.7E-07	1.5E-07	NA	NA	NA	NA	NA	NA
selenium	3.8E-11	2.9E-08	1.0E-07	NA	NA	NA	NA	NA	NA
silver	2.6E-10	1.6E-07	NA	NA	NA	NA	NA	NA	NA
thallium	9.4E-12	1.6E-08	5.5E-08	NA	NA	NA	NA	NA	NA
uranium-total	8.2E-08	3.1E-05	1.1E-04	NA	NA	NA	NA	NA	NA
vanadium	7.2E-10	9.3E-07	3.3E-07	NA	NA	NA	NA	NA	NA
zinc	4.0E-09	4.8E-06	1.7E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.3E-13	9.7E-09	1.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-15	3.1E-10	3.3E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	1.7E-10	1.8E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.4E-10	1.5E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	9.2E-08	9.8E-06	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-13	6.1E-10	6.5E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	7.1E-08	7.5E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	8.1E-08	8.6E-06	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.0E-08	7.5E-10	1.1E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	6.9E-10	7.3E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	6.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20b
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.1E-12	1.8E-08	6.4E-08	NA	NA	NA	NA	NA	NA
aluminum	7.6E-08	3.3E-04	1.2E-03	NA	NA	NA	NA	NA	NA
antimony	1.6E-10	1.1E-07	3.8E-07	NA	NA	NA	NA	NA	NA
arsenic	7.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
barium	8.4E-10	3.4E-06	1.2E-05	NA	NA	NA	NA	NA	NA
beryllium	8.0E-12	5.4E-08	1.9E-07	NA	NA	NA	NA	NA	NA
boron	NA	4.9E-07	1.7E-06	NA	NA	NA	NA	NA	NA
cadmium	4.4E-11	5.8E-08	2.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-10	4.8E-07	1.7E-06	NA	NA	NA	NA	NA	NA
cobalt	8.8E-11	4.1E-07	1.4E-06	NA	NA	NA	NA	NA	NA
copper	2.1E-10	5.6E-07	2.0E-07	NA	NA	NA	NA	NA	NA
lead	8.8E-10	7.8E-07	2.8E-06	NA	NA	NA	NA	NA	NA
magnesium	2.5E-07	6.0E-04	2.1E-03	NA	NA	NA	NA	NA	NA
manganese	7.2E-09	3.2E-05	1.1E-04	NA	NA	NA	NA	NA	NA
mercury	1.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	6.4E-11	4.0E-07	1.4E-06	NA	NA	NA	NA	NA	NA
nickel	2.0E-10	5.8E-07	1.0E-07	NA	NA	NA	NA	NA	NA
selenium	7.2E-12	2.6E-08	9.2E-08	NA	NA	NA	NA	NA	NA
silver	7.2E-11	1.3E-07	NA	NA	NA	NA	NA	NA	NA
thallium	3.5E-12	2.3E-08	8.0E-08	NA	NA	NA	NA	NA	NA
uranium-total	5.6E-09	5.0E-07	1.8E-06	NA	NA	NA	NA	NA	NA
vanadium	1.9E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.6E-09	2.3E-06	8.2E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.0E-14	2.0E-08	2.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	5.4E-09	5.8E-07	NA	NA	NA	NA	NA	NA
methylene chloride	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	4.4E-09	4.7E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	3.2E-09	3.4E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.4E-07	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20c
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	8.9E-12	1.8E-08	6.5E-08	NA	NA	NA	NA	NA	NA
aluminum	1.4E-07	3.6E-04	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	2.3E-10	1.7E-07	6.1E-07	NA	NA	NA	NA	NA	NA
arsenic	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.0E-09	4.6E-06	1.6E-05	NA	NA	NA	NA	NA	NA
beryllium	1.8E-11	3.3E-08	1.2E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.3E-11	8.1E-08	2.9E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.1E-10	5.3E-07	1.9E-06	NA	NA	NA	NA	NA	NA
cobalt	1.5E-10	4.9E-07	1.7E-06	NA	NA	NA	NA	NA	NA
copper	6.5E-10	6.8E-07	2.4E-07	NA	NA	NA	NA	NA	NA
lead	6.4E-09	2.7E-06	9.4E-06	NA	NA	NA	NA	NA	NA
magnesium	4.7E-07	1.7E-03	6.0E-03	NA	NA	NA	NA	NA	NA
manganese	1.5E-08	6.2E-05	2.2E-04	NA	NA	NA	NA	NA	NA
mercury	5.8E-12	4.1E-09	7.2E-08	NA	NA	NA	NA	NA	NA
molybdenum	1.3E-10	3.8E-07	1.4E-06	NA	NA	NA	NA	NA	NA
nickel	3.6E-10	6.9E-07	1.2E-07	NA	NA	NA	NA	NA	NA
selenium	1.2E-11	1.8E-08	6.4E-08	NA	NA	NA	NA	NA	NA
silver	1.1E-10	4.4E-08	NA	NA	NA	NA	NA	NA	NA
thallium	5.7E-12	2.4E-08	8.5E-08	NA	NA	NA	NA	NA	NA
uranium-total	2.3E-08	8.1E-06	2.9E-05	NA	NA	NA	NA	NA	NA
vanadium	3.7E-10	1.1E-06	3.7E-07	NA	NA	NA	NA	NA	NA
zinc	3.8E-09	1.0E-05	3.7E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.2E-13	3.2E-09	4.6E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.7E-08	1.8E-06	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E-13	1.1E-09	1.2E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	2.7E-08	2.9E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	9.0E-09	9.6E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.9E-08	6.0E-10	8.5E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	4.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.9E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20d
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	5.2E-12	2.0E-08	7.2E-08	NA	8.9E-07	3.8E-07	9.9E-10	6.7E-09	NA
aluminum	8.0E-08	2.8E-04	1.0E-03	NA	NA	NA	NA	NA	NA
antimony	1.2E-10	3.6E-07	1.3E-06	NA	NA	NA	9.5E-08	6.4E-07	NA
arsenic	8.0E-11	NA	NA	NA	6.3E-07	9.2E-08	1.9E-07	1.3E-07	NA
barium	1.2E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	9.6E-12	4.7E-08	1.7E-07	NA	NA	NA	2.8E-08	1.9E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.1E-11	9.5E-08	3.4E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-10	4.5E-07	1.6E-06	NA	NA	NA	NA	NA	NA
cobalt	8.0E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.2E-10	4.6E-07	1.6E-07	NA	NA	NA	NA	NA	NA
lead	6.4E-09	2.1E-06	7.4E-06	NA	1.1E-05	6.7E-09	1.1E-05	7.3E-05	NA
magnesium	2.4E-07	6.0E-04	2.1E-03	NA	3.5E-03	5.1E-04	5.4E-04	3.6E-03	NA
manganese	8.0E-09	NA	NA	NA	4.8E-06	7.0E-07	3.0E-05	2.0E-04	NA
mercury	3.2E-12	NA	NA	NA	NA	NA	9.2E-09	3.1E-07	NA
molybdenum	6.0E-11	2.8E-07	9.8E-07	NA	NA	NA	NA	NA	NA
nickel	1.7E-10	5.1E-07	9.0E-08	NA	NA	NA	NA	NA	NA
selenium	7.2E-12	2.7E-08	9.6E-08	NA	1.2E-07	1.7E-08	NA	NA	NA
silver	6.0E-11	3.0E-07	NA	NA	NA	NA	NA	NA	NA
thallium	2.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.0E-08	4.7E-07	1.7E-06	NA	4.0E-06	5.9E-07	3.3E-05	2.2E-04	NA
vanadium	2.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	9.6E-10	2.1E-06	7.5E-06	NA	1.1E-06	1.0E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.4E-14	1.7E-09	2.5E-09	NA	6.7E-06	4.1E-04	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.6E-10	NA	NA
chloroform	3.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	6.2E-11	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	6.0E-09	1.2E-06	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	2.0E-09	2.1E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E-08	1.0E-10	1.4E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	6.9E-12	1.4E-09	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	1.7E-05	2.5E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	2.6E-05	3.7E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.0E-02	1.5E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20e
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.8E-12	1.5E-08	5.3E-08	NA	1.6E-05	6.8E-06	8.0E-10	5.4E-09	NA
aluminum	7.6E-08	3.2E-04	1.1E-03	NA	NA	NA	NA	NA	NA
antimony	1.5E-10	NA	NA	NA	1.7E-07	2.5E-08	2.3E-07	1.5E-06	NA
arsenic	9.2E-11	NA	NA	NA	3.3E-07	4.8E-08	3.6E-07	2.4E-07	NA
barium	1.2E-09	3.4E-06	1.2E-05	NA	NA	NA	NA	NA	NA
beryllium	9.6E-12	5.8E-08	2.0E-07	NA	4.4E-09	6.4E-10	2.7E-08	1.8E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.1E-11	4.4E-08	1.6E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	8.0E-11	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.2E-10	4.6E-07	1.6E-07	NA	NA	NA	NA	NA	NA
lead	2.4E-09	NA	NA	NA	7.3E-07	4.3E-10	5.6E-06	3.7E-05	NA
magnesium	2.0E-07	NA	NA	NA	2.4E-02	3.5E-03	4.3E-04	2.9E-03	NA
manganese	8.4E-09	4.2E-05	1.5E-04	NA	3.3E-05	4.8E-06	2.2E-05	1.5E-04	NA
mercury	3.5E-12	NA	NA	NA	1.8E-07	2.7E-08	6.9E-09	2.3E-07	NA
molybdenum	5.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
selenium	8.8E-12	NA	NA	NA	NA	NA	NA	NA	NA
silver	6.0E-11	1.6E-08	NA	NA	NA	NA	NA	NA	NA
thallium	2.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.3E-08	3.2E-06	1.1E-05	NA	2.3E-04	3.4E-05	2.0E-05	1.4E-04	NA
vanadium	1.9E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	9.2E-10	2.9E-06	1.0E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.4E-13	2.4E-08	3.4E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.5E-09	1.4E-08	1.5E-11	3.0E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	7.9E-11	NA	NA
[illegible]	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]er	NA	NA	NA	NA	5.7E-08	8.7E-08	NA	NA	NA
[illegible]	NA	NA	NA	NA	2.8E-06	7.4E-06	3.2E-09	6.5E-07	NA
[illegible]chloride	NA	6.4E-09	6.8E-07	NA	NA	NA	NA	NA	NA
[illegible]	3.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]rene	NA	5.1E-09	5.4E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	1.6E-07	2.8E-07	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	3.7E-09	4.0E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.9E-08	6.8E-11	9.6E-09	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	4.0E-10	4.5E-08	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20f
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	4.8E-12	NA	NA	NA	3.2E-07	1.4E-07	6.1E-10	4.1E-09	NA
aluminum	1.5E-07	3.4E-04	1.2E-03	NA	1.7E-03	2.4E-04	NA	NA	NA
antimony	4.4E-10	1.0E-06	3.6E-06	NA	NA	NA	2.3E-07	1.5E-06	NA
arsenic	2.8E-10	3.4E-07	1.2E-07	NA	3.9E-07	5.8E-08	3.6E-07	2.4E-07	NA
barium	1.6E-09	2.4E-06	8.4E-06	NA	2.6E-05	3.8E-06	NA	NA	NA
beryllium	1.4E-11	2.5E-08	8.9E-08	NA	NA	NA	2.5E-08	1.7E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.8E-11	2.0E-07	7.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.8E-10	5.2E-07	1.8E-06	NA	1.3E-06	3.9E-07	NA	NA	NA
cobalt	1.6E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.6E-10	6.3E-07	2.2E-07	NA	2.3E-06	3.4E-07	NA	NA	NA
lead	1.2E-09	6.5E-07	2.3E-06	NA	1.1E-06	6.2E-10	5.0E-07	3.3E-06	NA
magnesium	3.5E-07	NA	NA	NA	7.6E-03	1.1E-03	3.2E-04	2.1E-03	NA
manganese	1.8E-08	NA	NA	NA	9.6E-05	1.4E-05	1.6E-05	1.0E-04	NA
mercury	2.8E-12	NA	NA	NA	NA	NA	4.7E-09	1.6E-07	NA
molybdenum	8.4E-11	1.8E-07	6.2E-07	NA	NA	NA	NA	NA	NA
nickel	3.9E-10	7.6E-07	1.3E-07	NA	3.1E-06	4.6E-08	NA	NA	NA
selenium	1.3E-11	2.8E-08	1.0E-07	NA	NA	NA	NA	NA	NA
silver	1.5E-10	1.5E-07	NA	NA	NA	NA	NA	NA	NA
thallium	6.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	6.8E-09	2.7E-06	9.7E-06	NA	1.6E-05	2.3E-06	8.3E-06	5.6E-05	NA
vanadium	3.7E-10	8.2E-07	2.9E-07	NA	3.7E-06	5.4E-07	NA	NA	NA
zinc	1.5E-09	2.7E-06	9.5E-06	NA	4.5E-06	3.9E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.6E-14	1.3E-07	1.8E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.4E-12	1.5E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	7.8E-06	1.0E-05	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	2.4E-10	4.8E-08	NA
fluoranthene	NA	8.5E-08	9.0E-06	NA	NA	NA	NA	NA	NA
methylene chloride	5.2E-14	9.5E-10	1.0E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	9.2E-08	9.7E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.3E-07	2.5E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.0E-07	NA	NA	NA	2.8E-05	5.1E-04	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	5.2E-05	7.6E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	3.1E-04	4.5E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	6.5E-05	9.5E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.2E-02	1.7E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-20g
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, UNDEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	9.2E-12	6.8E-08	2.4E-07	NA	NA	NA	NA	NA	NA
aluminum	1.2E-07	2.8E-04	1.0E-03	NA	NA	NA	NA	NA	NA
antimony	1.8E-10	1.4E-07	4.9E-07	NA	NA	NA	NA	NA	NA
arsenic	1.2E-10	4.5E-07	1.6E-07	NA	NA	NA	NA	NA	NA
barium	1.6E-09	3.0E-06	1.1E-05	NA	NA	NA	NA	NA	NA
beryllium	1.3E-11	2.5E-08	8.8E-08	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.3E-10	1.5E-06	5.1E-06	NA	NA	NA	NA	NA	NA
cobalt	1.2E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	6.0E-10	6.2E-07	2.2E-07	NA	NA	NA	NA	NA	NA
lead	1.5E-08	7.4E-05	2.6E-04	NA	NA	NA	NA	NA	NA
magnesium	3.8E-07	NA	NA	NA	NA	NA	NA	NA	NA
manganese	1.2E-08	3.1E-05	1.1E-04	NA	NA	NA	NA	NA	NA
mercury	4.4E-12	2.1E-07	3.8E-06	NA	NA	NA	NA	NA	NA
molybdenum	1.0E-10	2.9E-07	1.0E-06	NA	NA	NA	NA	NA	NA
nickel	2.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
selenium	8.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
silver	9.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.0E-08	6.4E-07	2.3E-06	NA	NA	NA	NA	NA	NA
vanadium	2.9E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.4E-09	3.0E-06	1.0E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	9.2E-14	2.1E-09	3.0E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21a
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	5.6E-02	8.6E+01	NA	1.4E+00	NA	NA	NA	NA	NA
Np_{237+d}	2.5E-02	3.5E+01	NA	5.7E-01	NA	NA	NA	NA	NA
Pu_{238}	7.3E-01	3.7E+02	NA	6.1E+00	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.0E-01	1.0E+02	NA	1.7E+00	NA	NA	NA	NA	NA
Ra_{226+d}	1.5E+01	2.3E+02	NA	3.8E+00	NA	NA	NA	NA	NA
Ru_{106}	5.8E-02	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	1.3E-01	1.5E+02	NA	2.4E+00	NA	NA	NA	NA	NA
Tc_{99}	6.8E-01	5.1E+02	NA	8.4E+00	NA	NA	NA	NA	NA
Th_{230}	3.2E+01	6.1E+03	NA	1.0E+02	NA	NA	NA	NA	NA
Th_{232+d}	2.4E+00	2.6E+03	NA	4.2E+01	NA	NA	NA	NA	NA
U_{234}	8.2E+01	4.2E+04	NA	6.8E+02	NA	NA	NA	NA	NA
$U_{235/236}$	6.8E+00	3.5E+03	NA	5.7E+01	NA	NA	NA	NA	NA
U_{238+d}	9.0E+01	5.3E+04	NA	8.7E+02	NA	NA	NA	NA	NA
Rn_{222+d}	2.3E+05	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.6E-10	1.1E-06	1.5E-07	NA	NA	NA	NA	NA	NA
beryllium	8.4E-11	1.2E-07	1.6E-07	NA	NA	NA	NA	NA	NA
cadmium	3.2E-10	5.5E-07	7.1E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-09	2.8E-06	3.7E-06	NA	NA	NA	NA	NA	NA
nickel	1.8E-09	2.7E-06	1.7E-07	NA	NA	NA	NA	NA	NA
benzene	7.5E-16	2.7E-10	1.8E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.7E-13	3.0E-08	1.5E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.5E-13	1.6E-08	6.0E-07	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E-15	9.6E-10	3.7E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.2E-10	1.6E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	5.9E-12	2.3E-10	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.0E-13	1.9E-09	7.3E-08	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	9.1E-13	4.3E-08	1.7E-06	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E-07	2.3E-09	1.2E-07	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E-07	2.2E-09	8.5E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.4E-12	1.4E-07	5.5E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.9E-12	1.2E-07	4.6E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.1E-12	1.3E-07	4.9E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.1E-12	1.0E-07	3.9E-06	NA	NA	NA	NA	NA	NA
chrysene	4.5E-12	1.3E-07	5.2E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E-12	3.7E-08	1.4E-06	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.2E-12	9.7E-08	3.8E-06	NA	NA	NA	NA	NA	NA
aroclor-1254	9.2E-12	2.4E-07	1.8E-06	NA	NA	NA	NA	NA	NA
aroclor-1260	9.1E-14	5.6E-08	4.4E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	2.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	9.5E-13	3.7E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.9E-16	3.3E-12	1.3E-11	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.9E-16	3.9E-12	1.5E-11	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21b
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	6.5E-03	7.3E+01	NA	1.2E+00	NA	NA	NA	NA	NA
Np_{237+d}	1.7E-03	7.7E+01	NA	1.3E+00	NA	NA	NA	NA	NA
Pu_{238}	4.0E-02	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.8E-03	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+d}	1.4E+00	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	7.5E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	1.1E-02	1.3E+02	NA	2.2E+00	NA	NA	NA	NA	NA
Tc_{99}	8.5E-02	1.5E+02	NA	2.5E+00	NA	NA	NA	NA	NA
Th_{230}	1.5E+00	1.7E+02	NA	2.7E+00	NA	NA	NA	NA	NA
Th_{232+d}	1.6E-01	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.2E+00	3.8E+02	NA	6.3E+00	NA	NA	NA	NA	NA
$U_{235/236}$	3.8E-01	6.7E+01	NA	1.1E+00	NA	NA	NA	NA	NA
U_{238+d}	5.1E+00	4.8E+02	NA	7.9E+00	NA	NA	NA	NA	NA
Rn_{222+d}	3.5E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E-11	1.7E-07	2.2E-07	NA	NA	NA	NA	NA	NA
cadmium	1.1E-10	1.8E-07	2.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.9E-10	1.5E-06	1.9E-06	NA	NA	NA	NA	NA	NA
nickel	5.2E-10	1.8E-06	1.1E-07	NA	NA	NA	NA	NA	NA
benzene	2.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.1E-13	6.1E-08	3.2E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	5.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E-06	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.2E-06	4.1E-10	1.6E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.5E-13	5.0E-09	1.9E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.1E-13	5.8E-09	2.3E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.0E-13	6.2E-09	2.4E-07	NA	NA	NA	NA	NA	NA
chrysene	6.9E-13	8.0E-09	3.1E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	6.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	3.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.5E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21c
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:		Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Contaminants of Concern	Inhalation								
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+M}	2.4E-02	7.6E+01	NA	1.3E+00	NA	NA	NA	NA	NA
Np_{237+D}	5.6E-03	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.3E-01	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.0E-02	2.5E+01	NA	4.1E-01	NA	NA	NA	NA	NA
Ra_{226+D}	1.8E+01	4.1E+01	NA	6.7E-01	NA	NA	NA	NA	NA
Ru_{106}	1.1E-02	2.4E+02	NA	3.9E+00	NA	NA	NA	NA	NA
Sr_{90+D}	7.8E-02	2.5E+02	NA	4.1E+00	NA	NA	NA	NA	NA
Tc_{99}	7.7E-01	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	4.0E+01	1.8E+02	NA	3.0E+00	NA	NA	NA	NA	NA
Th_{232+D}	1.3E+00	2.2E+03	NA	3.6E+01	NA	NA	NA	NA	NA
U_{234}	2.5E+01	2.0E+02	NA	3.3E+00	NA	NA	NA	NA	NA
$U_{235/236}$	1.8E+00	1.2E+03	NA	1.9E+01	NA	NA	NA	NA	NA
U_{238+D}	2.5E+01	2.6E+02	NA	4.2E+00	NA	NA	NA	NA	NA
Rn_{222+D}	1.3E+05	1.7E+04	NA	2.9E+02	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	4.6E-11	1.0E-07	1.3E-07	NA	NA	NA	NA	NA	NA
cadmium	1.9E-10	2.5E-07	3.2E-07	NA	NA	NA	NA	NA	NA
chromium vi	8.2E-10	1.6E-06	2.1E-06	NA	NA	NA	NA	NA	NA
nickel	9.5E-10	2.1E-06	1.4E-07	NA	NA	NA	NA	NA	NA
benzene	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.3E-13	9.9E-09	5.2E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.5E-13	3.4E-09	1.3E-07	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	2.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E-07	1.8E-09	9.5E-08	NA	NA	NA	NA	NA	NA
trichloroethene	5.2E-07	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E-12	3.8E-08	1.5E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.9E-12	3.0E-08	1.2E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.8E-12	1.0E-07	4.0E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.0E-12	1.8E-08	7.1E-07	NA	NA	NA	NA	NA	NA
chrysene	3.0E-12	6.1E-08	2.4E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.3E-12	4.1E-09	1.6E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.5E-12	1.5E-08	5.8E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	4.8E-12	1.5E-09	1.2E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	1.4E-13	1.4E-08	1.1E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	4.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21d
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+M}	1.1E-02	4.9E+01	NA	8.1E-01	NA	NA	NA	NA	NA
Np_{237+14}	3.5E-03	NA	NA	NA	NA	NA	7.6E-01	NA	1.4E-02
Pu_{238}	1.8E-01	NA	NA	NA	NA	NA	1.1E+01	NA	2.1E-01
$Pu_{239/240}$	2.2E-02	5.7E+01	NA	9.4E-01	NA	NA	4.3E+00	NA	7.9E-02
Ra_{226+04}	2.7E+00	NA	NA	NA	NA	NA	3.7E+02	NA	6.7E+00
Ru_{106}	5.4E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+14}	2.7E-02	2.0E+02	NA	3.3E+00	NA	NA	1.3E+00	NA	2.4E-02
Tc_{99}	2.3E-01	NA	NA	NA	NA	NA	1.9E+01	NA	3.5E-01
Th_{230}	1.0E+01	1.7E+02	NA	2.8E+00	NA	NA	5.5E+02	NA	1.0E+01
$Th_{232+104}$	6.8E-01	NA	NA	NA	NA	NA	4.1E+01	NA	7.6E-01
U_{234}	1.9E+01	6.4E+02	NA	1.0E+01	3.3E+01	NA	2.3E+03	NA	4.1E+01
$U_{235/236}$	1.5E+00	7.6E+01	NA	1.3E+00	NA	NA	1.5E+02	NA	2.7E+00
U_{238+24}	2.1E+01	4.5E+02	NA	7.3E+00	3.7E+01	NA	2.6E+03	NA	4.8E+01
Rn_{222+44}	1.5E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.1E-10	NA	NA	NA	1.1E-07	1.6E-08	3.3E-08	2.2E-08	NA
beryllium	2.5E-11	1.5E-07	1.9E-07	NA	NA	NA	4.9E-09	3.3E-08	NA
cadmium	8.0E-11	2.9E-07	3.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.0E-10	1.4E-06	1.8E-06	NA	NA	NA	NA	NA	NA
nickel	4.5E-10	1.6E-06	1.0E-07	NA	NA	NA	NA	NA	NA
benzene	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-13	5.3E-09	2.7E-09	NA	1.2E-06	7.1E-05	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	7.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	1.1E-11	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	1.0E-09	2.1E-07	NA
[illegible]	1.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	7.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	2.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ene	6.3E-08	3.1E-10	1.6E-08	NA	NA	NA	NA	NA	NA
[illegible]loroethene	1.3E-07	2.1E-10	8.1E-09	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	8.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	9.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	7.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	1.9E-12	NA	NA	NA	NA	NA	3.5E-09	1.4E-07	NA
aroclor-1260	1.7E-14	NA	NA	NA	NA	NA	1.3E-09	5.3E-08	NA
4,4-ddt	3.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	4.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.7E-16	NA	NA	NA	NA	NA	1.2E-12	2.4E-10	NA
dieldrin	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.4E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21e
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+d}	1.1E-02	7.3E+01	NA	1.2E+00	NA	NA	NA	NA	NA
Np_{237+d}	4.2E-03	NA	NA	NA	4.3E+00	NA	1.3E+00	NA	2.3E-02
Pu_{238}	2.2E-01	NA	NA	NA	1.3E+00	NA	6.1E+00	NA	1.1E-01
$Pu_{239/240}$	2.5E-02	NA	NA	NA	5.0E-01	NA	2.4E+00	NA	4.4E-02
Ra_{226+d}	2.3E+00	NA	NA	NA	1.0E+02	NA	2.0E+02	NA	3.6E+00
Ru_{106}	8.8E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	2.6E-02	1.5E+02	NA	2.5E+00	2.6E+01	NA	1.0E+00	NA	1.8E-02
Tc_{99}	1.4E-01	1.2E+02	NA	2.0E+00	3.2E+04	NA	1.6E+01	NA	2.9E-01
Th_{230}	1.1E+01	2.2E+02	NA	3.6E+00	1.9E+01	NA	3.4E+02	NA	6.1E+00
Th_{232+d}	5.8E-01	NA	NA	NA	1.4E+00	NA	2.8E+01	NA	5.1E-01
U_{234}	2.1E+01	1.8E+03	NA	3.0E+01	1.8E+04	NA	1.2E+03	NA	2.2E+01
$U_{235/236}$	1.7E+00	2.3E+02	NA	3.8E+00	1.1E+03	NA	8.2E+01	NA	1.5E+00
U_{238+d}	2.3E+01	3.4E+03	NA	5.6E+01	2.1E+04	NA	1.7E+03	NA	3.0E+01
Rn_{222+d}	1.2E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.4E-10	NA	NA	NA	5.7E-08	8.3E-09	6.2E-08	4.2E-08	NA
beryllium	2.5E-11	1.8E-07	2.3E-07	NA	7.5E-10	1.1E-10	4.6E-09	3.1E-08	NA
cadmium	8.0E-11	1.3E-07	1.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
nickel	4.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.5E-13	7.3E-08	3.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	1.1E-09	2.4E-09	2.5E-12	5.1E-10	NA
carbazole	5.2E-14	7.3E-10	2.8E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	9.8E-09	1.5E-08	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	4.8E-07	1.3E-06	5.5E-10	1.1E-07	NA
methylene chloride	9.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	9.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.6E-08	2.1E-10	1.1E-08	NA	NA	NA	NA	NA	NA
trichloroethene	1.6E-07	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.5E-13	6.9E-09	2.7E-07	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	8.1E-13	6.3E-09	2.5E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.5E-13	6.8E-09	2.7E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.5E-13	8.0E-09	3.1E-07	NA	NA	NA	NA	NA	NA
chrysene	8.1E-13	9.1E-09	3.6E-07	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.6E-13	5.2E-09	2.0E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	1.8E-12	NA	NA	NA	1.2E-10	6.5E-08	1.9E-09	7.5E-08	NA
aroclor-1260	1.4E-14	NA	NA	NA	3.6E-11	1.3E-07	6.5E-10	2.6E-08	NA
4,4-ddt	2.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	4.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.4E-16	NA	NA	NA	6.9E-11	7.6E-09	NA	NA	NA
dieldrin	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21f
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:		Incidental	Dermal	External	Incidental	Dermal	Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure	Ingestion	Contact	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+bd}	1.0E-02	1.0E+02	NA	1.7E+00	NA	NA	NA	NA	NA
Np_{237+1d}	3.9E-03	1.0E+02	NA	1.7E+00	1.6E+01	NA	1.3E+00	NA	2.3E-02
Pu_{239}	5.5E-02	2.9E+01	NA	4.7E-01	NA	NA	1.1E+00	NA	1.9E-02
$Pu_{239/240}$	1.3E-02	2.9E+01	NA	4.7E-01	1.8E+01	NA	5.8E-01	NA	1.1E-02
Ra_{226+bd}	2.8E+00	3.3E+03	NA	5.4E+01	NA	NA	3.1E+01	NA	5.6E-01
Ru_{106}	2.5E-02	2.9E+02	NA	4.8E+00	NA	NA	NA	NA	NA
Sr_{90+1d}	2.1E-02	1.4E+02	NA	2.4E+00	NA	NA	7.0E-01	NA	1.3E-02
Tc_{99}	1.0E-01	1.1E+02	NA	1.9E+00	NA	NA	1.2E+01	NA	2.1E-01
Th_{230}	3.8E+00	3.4E+03	NA	5.6E+01	5.5E+01	NA	1.2E+02	NA	2.3E+00
$Th_{232+10d}$	2.4E-01	2.4E+02	NA	4.0E+00	NA	NA	1.5E+01	NA	2.7E-01
U_{234}	5.5E+00	3.1E+03	NA	5.1E+01	2.6E+04	NA	1.2E+02	NA	2.2E+00
$U_{235/236}$	5.4E-01	1.3E+02	NA	2.2E+00	9.1E+02	NA	1.6E+01	NA	2.9E-01
U_{238+2d}	6.5E+00	6.8E+03	NA	1.1E+02	2.6E+04	NA	7.2E+02	NA	1.3E+01
Rn_{222+4d}	3.8E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.3E-10	1.0E-06	1.3E-07	NA	6.8E-08	9.9E-09	6.2E-08	4.2E-08	NA
beryllium	3.8E-11	7.7E-08	1.0E-07	NA	NA	NA	4.4E-09	2.9E-08	NA
cadmium	2.3E-10	6.0E-07	7.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	7.4E-10	1.6E-06	2.1E-06	NA	2.3E-07	6.6E-08	NA	NA	NA
nickel	1.0E-09	2.3E-06	1.5E-07	NA	5.4E-07	7.9E-09	NA	NA	NA
benzene	1.6E-16	3.1E-10	2.0E-11	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.0E-13	3.8E-07	2.0E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	1.3E-12	2.6E-10	NA
carbazole	5.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.1E-11	8.2E-09	NA
methylene chloride	1.4E-13	2.9E-09	1.1E-07	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	3.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.2E-07	NA	NA	NA	4.8E-06	8.8E-05	NA	NA	NA
trichloroethene	1.0E-06	6.2E-10	2.4E-08	NA	3.6E-07	1.7E-06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.9E-13	1.3E-07	5.3E-06	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	7.8E-13	1.0E-07	4.0E-06	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.8E-13	2.5E-07	9.7E-06	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.5E-13	6.3E-09	2.5E-07	NA	NA	NA	NA	NA	NA
chrysene	6.8E-13	1.1E-07	4.4E-06	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.9E-13	4.1E-09	1.6E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	9.4E-13	1.5E-09	1.1E-08	NA	NA	NA	2.6E-10	1.1E-08	NA
aroclor-1260	1.9E-14	NA	NA	NA	NA	NA	1.2E-11	4.7E-10	NA
4,4-ddt	2.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.3E-16	9.3E-11	3.6E-10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.0E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-21g
INTAKES FOR CARCINOGENS FOR RECREATIONAL USER, DEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	
Cs_{137+bd}	1.1E-02	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.8E-03	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.7E-01	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E-02	1.6E+02	NA	2.7E+00	NA	NA	NA	NA	NA
Ra_{226+bd}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	6.0E-03	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.5E-02	1.6E+02	NA	2.6E+00	NA	NA	NA	NA	NA
Tc_{99}	4.2E-01	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.4E+01	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.1E+01	3.5E+02	NA	5.7E+00	NA	NA	NA	NA	NA
$U_{235/236}$	1.6E+00	7.7E+01	NA	1.3E+00	NA	NA	NA	NA	NA
U_{238+2d}	2.1E+01	2.6E+02	NA	4.2E+00	NA	NA	NA	NA	NA
Rn_{222+4d}	2.3E+04	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.1E-10	1.4E-06	1.8E-07	NA	NA	NA	NA	NA	NA
beryllium	3.3E-11	7.6E-08	9.8E-08	NA	NA	NA	NA	NA	NA
cadmium	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-10	4.4E-06	5.8E-06	NA	NA	NA	NA	NA	NA
nickel	6.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-13	6.4E-09	3.3E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	8.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	3.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.7E-08	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.4E-07	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	9.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	1.9E-12	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	2.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	3.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.3E-17	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22a
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	4.1E-11	8.9E-08	1.2E-07	NA	NA	NA	NA	NA	NA
aluminum	7.5E-07	1.3E-03	1.6E-03	NA	NA	NA	NA	NA	NA
antimony	1.7E-09	2.4E-06	3.2E-06	NA	NA	NA	NA	NA	NA
arsenic	7.6E-10	1.1E-06	1.5E-07	NA	NA	NA	NA	NA	NA
barium	1.4E-08	2.4E-05	3.1E-05	NA	NA	NA	NA	NA	NA
beryllium	8.4E-11	1.2E-07	1.6E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.2E-10	5.5E-07	7.1E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-09	2.8E-06	3.7E-06	NA	NA	NA	NA	NA	NA
cobalt	7.9E-10	1.2E-06	1.6E-06	NA	NA	NA	NA	NA	NA
copper	2.6E-09	4.4E-06	5.8E-07	NA	NA	NA	NA	NA	NA
lead	3.0E-08	1.3E-05	1.6E-05	NA	NA	NA	NA	NA	NA
magnesium	2.0E-06	4.2E-04	5.5E-04	NA	NA	NA	NA	NA	NA
manganese	7.2E-08	6.0E-05	7.8E-05	NA	NA	NA	NA	NA	NA
mercury	4.5E-11	6.9E-08	4.5E-07	NA	NA	NA	NA	NA	NA
molybdenum	6.6E-10	7.9E-07	1.0E-06	NA	NA	NA	NA	NA	NA
nickel	1.8E-09	2.7E-06	1.7E-07	NA	NA	NA	NA	NA	NA
selenium	9.9E-11	9.0E-08	1.2E-07	NA	NA	NA	NA	NA	NA
silver	6.8E-10	4.9E-07	NA	NA	NA	NA	NA	NA	NA
thallium	2.5E-11	4.7E-08	6.2E-08	NA	NA	NA	NA	NA	NA
uranium-total	2.2E-07	9.6E-05	1.2E-04	NA	NA	NA	NA	NA	NA
vanadium	1.9E-09	2.8E-06	3.7E-07	NA	NA	NA	NA	NA	NA
zinc	1.0E-08	1.5E-05	1.9E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.7E-13	3.0E-08	1.5E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E-15	9.6E-10	3.7E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	5.2E-10	2.0E-08	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.2E-10	1.6E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.8E-07	1.1E-05	NA	NA	NA	NA	NA	NA
methylene chloride	7.0E-13	1.9E-09	7.3E-08	NA	NA	NA	NA	NA	NA
pyrene	NA	2.2E-07	8.4E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.5E-07	9.7E-06	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E-07	2.3E-09	1.2E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	2.1E-09	8.2E-08	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22b
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	8.0E-12	5.5E-08	7.1E-08	NA	NA	NA	NA	NA	NA
aluminum	2.0E-07	1.0E-03	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	4.2E-10	3.3E-07	4.3E-07	NA	NA	NA	NA	NA	NA
arsenic	2.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.2E-09	1.0E-05	1.4E-05	NA	NA	NA	NA	NA	NA
beryllium	2.1E-11	1.7E-07	2.2E-07	NA	NA	NA	NA	NA	NA
boron	NA	1.5E-06	1.9E-06	NA	NA	NA	NA	NA	NA
cadmium	1.1E-10	1.8E-07	2.3E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.9E-10	1.5E-06	1.9E-06	NA	NA	NA	NA	NA	NA
cobalt	2.3E-10	1.2E-06	1.6E-06	NA	NA	NA	NA	NA	NA
copper	5.4E-10	1.7E-06	2.2E-07	NA	NA	NA	NA	NA	NA
lead	2.3E-09	2.4E-06	3.1E-06	NA	NA	NA	NA	NA	NA
magnesium	6.6E-07	1.8E-03	2.4E-03	NA	NA	NA	NA	NA	NA
manganese	1.9E-08	9.8E-05	1.3E-04	NA	NA	NA	NA	NA	NA
mercury	3.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.7E-10	1.2E-06	1.6E-06	NA	NA	NA	NA	NA	NA
nickel	5.2E-10	1.8E-06	1.1E-07	NA	NA	NA	NA	NA	NA
selenium	1.9E-11	8.0E-08	1.0E-07	NA	NA	NA	NA	NA	NA
silver	1.9E-10	4.0E-07	NA	NA	NA	NA	NA	NA	NA
thallium	9.2E-12	6.9E-08	9.0E-08	NA	NA	NA	NA	NA	NA
uranium-total	1.5E-08	1.5E-06	2.0E-06	NA	NA	NA	NA	NA	NA
vanadium	5.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	6.7E-09	7.1E-06	9.2E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.1E-13	6.1E-08	3.2E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.7E-08	6.5E-07	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.3E-08	5.3E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	9.8E-09	3.8E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E-06	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22c
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.3E-11	5.6E-08	7.3E-08	NA	NA	NA	NA	NA	NA
aluminum	3.7E-07	1.1E-03	1.4E-03	NA	NA	NA	NA	NA	NA
antimony	6.0E-10	5.3E-07	6.9E-07	NA	NA	NA	NA	NA	NA
arsenic	3.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
barium	5.2E-09	1.4E-05	1.8E-05	NA	NA	NA	NA	NA	NA
beryllium	4.6E-11	1.0E-07	1.3E-07	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.9E-10	2.5E-07	3.2E-07	NA	NA	NA	NA	NA	NA
chromium vi	8.2E-10	1.6E-06	2.1E-06	NA	NA	NA	NA	NA	NA
cobalt	4.0E-10	1.5E-06	1.9E-06	NA	NA	NA	NA	NA	NA
copper	1.7E-09	2.1E-06	2.7E-07	NA	NA	NA	NA	NA	NA
lead	1.7E-08	8.1E-06	1.1E-05	NA	NA	NA	NA	NA	NA
magnesium	1.2E-06	5.2E-03	6.7E-03	NA	NA	NA	NA	NA	NA
manganese	4.0E-08	1.9E-04	2.5E-04	NA	NA	NA	NA	NA	NA
mercury	1.5E-11	1.2E-08	8.1E-08	NA	NA	NA	NA	NA	NA
molybdenum	3.5E-10	1.2E-06	1.5E-06	NA	NA	NA	NA	NA	NA
nickel	9.5E-10	2.1E-06	1.4E-07	NA	NA	NA	NA	NA	NA
selenium	3.1E-11	5.5E-08	7.2E-08	NA	NA	NA	NA	NA	NA
silver	3.0E-10	1.4E-07	NA	NA	NA	NA	NA	NA	NA
thallium	1.5E-11	7.3E-08	9.5E-08	NA	NA	NA	NA	NA	NA
uranium-total	5.9E-08	2.5E-05	3.2E-05	NA	NA	NA	NA	NA	NA
vanadium	9.7E-10	3.2E-06	4.2E-07	NA	NA	NA	NA	NA	NA
zinc	1.0E-08	3.2E-05	4.1E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	8.3E-13	9.9E-09	5.2E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	5.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]ner	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	NA	NA	NA	NA	NA	NA	NA	NA
[illegible]	NA	5.1E-08	2.0E-06	NA	NA	NA	NA	NA	NA
[illegible]ene chloride	8.5E-13	3.4E-09	1.3E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	8.4E-08	3.3E-06	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	2.8E-08	1.1E-06	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E-07	1.8E-09	9.5E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22d
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.4E-11	6.2E-08	8.0E-08	NA	8.9E-07	3.8E-07	9.9E-10	6.7E-09	NA
aluminum	2.1E-07	8.6E-04	1.1E-03	NA	NA	NA	NA	NA	NA
antimony	3.2E-10	1.1E-06	1.4E-06	NA	NA	NA	9.5E-08	6.4E-07	NA
arsenic	2.1E-10	NA	NA	NA	6.3E-07	9.2E-08	1.9E-07	1.3E-07	NA
barium	3.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.5E-11	1.5E-07	1.9E-07	NA	NA	NA	2.8E-08	1.9E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.0E-11	2.9E-07	3.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	4.0E-10	1.4E-06	1.8E-06	NA	NA	NA	NA	NA	NA
cobalt	2.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	8.4E-10	1.4E-06	1.8E-07	NA	NA	NA	NA	NA	NA
lead	1.7E-08	6.4E-06	8.3E-06	NA	1.1E-05	6.7E-09	1.1E-05	7.3E-05	NA
magnesium	6.3E-07	1.8E-03	2.4E-03	NA	3.5E-03	5.1E-04	5.4E-04	3.6E-03	NA
manganese	2.1E-08	NA	NA	NA	4.8E-06	7.0E-07	3.0E-05	2.0E-04	NA
mercury	8.4E-12	NA	NA	NA	NA	NA	9.2E-09	3.1E-07	NA
molybdenum	1.6E-10	8.5E-07	1.1E-06	NA	NA	NA	NA	NA	NA
nickel	4.5E-10	1.6E-06	1.0E-07	NA	NA	NA	NA	NA	NA
selenium	1.9E-11	8.3E-08	1.1E-07	NA	1.2E-07	1.7E-08	NA	NA	NA
silver	1.6E-10	9.0E-07	NA	NA	NA	NA	NA	NA	NA
thallium	5.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	5.3E-08	1.5E-06	1.9E-06	NA	4.0E-06	5.9E-07	3.3E-05	2.2E-04	NA
vanadium	5.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.5E-09	6.5E-06	8.4E-06	NA	1.1E-06	1.0E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-13	5.3E-09	2.7E-09	NA	6.7E-06	4.1E-04	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.6E-10	NA	NA
chloroform	9.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	6.2E-11	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	6.0E-09	1.2E-06	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	6.1E-09	2.4E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.3E-08	3.1E-10	1.6E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	6.9E-12	1.4E-09	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	1.7E-05	2.5E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	2.6E-05	3.7E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.0E-02	1.5E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22e
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.0E-11	4.6E-08	5.9E-08	NA	1.6E-05	6.8E-06	8.0E-10	5.4E-09	NA
aluminum	2.0E-07	9.8E-04	1.3E-03	NA	NA	NA	NA	NA	NA
antimony	3.9E-10	NA	NA	NA	1.7E-07	2.5E-08	2.3E-07	1.5E-06	NA
arsenic	2.4E-10	NA	NA	NA	3.3E-07	4.8E-08	3.6E-07	2.4E-07	NA
barium	3.2E-09	1.0E-05	1.3E-05	NA	NA	NA	NA	NA	NA
beryllium	2.5E-11	1.8E-07	2.3E-07	NA	4.4E-09	6.4E-10	2.7E-08	1.8E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.0E-11	1.3E-07	1.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	3.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	2.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.7E-10	1.4E-06	1.8E-07	NA	NA	NA	NA	NA	NA
lead	6.3E-09	NA	NA	NA	7.3E-07	4.3E-10	5.6E-06	3.7E-05	NA
magnesium	5.3E-07	NA	NA	NA	2.4E-02	3.5E-03	4.3E-04	2.9E-03	NA
manganese	2.2E-08	1.3E-04	1.7E-04	NA	3.3E-05	4.8E-06	2.2E-05	1.5E-04	NA
mercury	9.2E-12	NA	NA	NA	1.8E-07	2.7E-08	6.9E-09	2.3E-07	NA
molybdenum	1.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
nickel	4.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
selenium	2.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
silver	1.6E-10	5.0E-08	NA	NA	NA	NA	NA	NA	NA
thallium	6.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	6.1E-08	9.9E-06	1.3E-05	NA	2.3E-04	3.4E-05	2.0E-05	1.4E-04	NA
vanadium	4.9E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.4E-09	8.8E-06	1.1E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.5E-13	7.3E-08	3.8E-08	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.5E-09	1.4E-08	1.5E-11	3.0E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	7.9E-11	NA	NA
chloroform	6.6E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	5.7E-08	8.7E-08	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	2.8E-06	7.4E-06	3.2E-09	6.5E-07	NA
fluoranthene	NA	2.0E-08	7.7E-07	NA	NA	NA	NA	NA	NA
methylene chloride	9.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.6E-08	6.1E-07	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	1.6E-07	2.8E-07	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	1.1E-08	4.4E-07	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.6E-08	2.1E-10	1.1E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	4.0E-10	4.5E-08	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22f
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.3E-11	NA	NA	NA	3.2E-07	1.4E-07	6.1E-10	4.1E-09	NA
aluminum	3.9E-07	1.0E-03	1.3E-03	NA	1.7E-03	2.4E-04	NA	NA	NA
antimony	1.1E-09	3.1E-06	4.1E-06	NA	NA	NA	2.3E-07	1.5E-06	NA
arsenic	7.3E-10	1.0E-06	1.3E-07	NA	3.9E-07	5.8E-08	3.6E-07	2.4E-07	NA
barium	4.2E-09	7.3E-06	9.5E-06	NA	2.6E-05	3.8E-06	NA	NA	NA
beryllium	3.8E-11	7.7E-08	1.0E-07	NA	NA	NA	2.5E-08	1.7E-07	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.3E-10	6.0E-07	7.8E-07	NA	NA	NA	NA	NA	NA
chromium vi	7.4E-10	1.6E-06	2.1E-06	NA	1.3E-06	3.9E-07	NA	NA	NA
cobalt	4.2E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	9.5E-10	1.9E-06	2.5E-07	NA	2.3E-06	3.4E-07	NA	NA	NA
lead	3.0E-09	2.0E-06	2.6E-06	NA	1.1E-06	6.2E-10	5.0E-07	3.3E-06	NA
magnesium	9.2E-07	NA	NA	NA	7.6E-03	1.1E-03	3.2E-04	2.1E-03	NA
manganese	4.7E-08	NA	NA	NA	9.6E-05	1.4E-05	1.6E-05	1.0E-04	NA
mercury	7.4E-12	NA	NA	NA	NA	NA	4.7E-09	1.6E-07	NA
molybdenum	2.2E-10	5.4E-07	7.0E-07	NA	NA	NA	NA	NA	NA
nickel	1.0E-09	2.3E-06	1.5E-07	NA	3.1E-06	4.6E-08	NA	NA	NA
selenium	3.4E-11	8.7E-08	1.1E-07	NA	NA	NA	NA	NA	NA
silver	3.9E-10	4.7E-07	NA	NA	NA	NA	NA	NA	NA
thallium	1.7E-11	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.8E-08	8.3E-06	1.1E-05	NA	1.6E-05	2.3E-06	8.3E-06	5.6E-05	NA
vanadium	9.6E-10	2.5E-06	3.3E-07	NA	3.7E-06	5.4E-07	NA	NA	NA
zinc	3.9E-09	8.2E-06	1.1E-05	NA	4.5E-06	3.9E-07	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.0E-13	3.8E-07	2.0E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.4E-12	1.5E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	7.8E-06	1.0E-05	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	2.4E-10	4.8E-08	NA
fluoranthene	NA	2.6E-07	1.0E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.4E-13	2.9E-09	1.1E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	2.8E-07	1.1E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	7.0E-07	2.7E-05	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.2E-07	NA	NA	NA	2.8E-05	5.1E-04	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	5.2E-05	7.6E-06	NA	NA	NA
nitrate	NA	NA	NA	NA	3.1E-04	4.5E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	6.5E-05	9.5E-06	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	1.2E-02	1.7E-03	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI-22g
INTAKES FOR TOXICANTS FOR RECREATIONAL USER, DEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.4E-11	2.1E-07	2.7E-07	NA	NA	NA	NA	NA	NA
aluminum	3.0E-07	8.6E-04	1.1E-03	NA	NA	NA	NA	NA	NA
antimony	4.8E-10	4.2E-07	5.5E-07	NA	NA	NA	NA	NA	NA
arsenic	3.1E-10	1.4E-06	1.8E-07	NA	NA	NA	NA	NA	NA
barium	4.1E-09	9.2E-06	1.2E-05	NA	NA	NA	NA	NA	NA
beryllium	3.3E-11	7.6E-08	9.8E-08	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-10	4.4E-06	5.8E-06	NA	NA	NA	NA	NA	NA
cobalt	3.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.6E-09	1.9E-06	2.5E-07	NA	NA	NA	NA	NA	NA
lead	3.9E-08	2.3E-04	2.9E-04	NA	NA	NA	NA	NA	NA
magnesium	1.0E-06	NA	NA	NA	NA	NA	NA	NA	NA
manganese	3.0E-08	9.6E-05	1.2E-04	NA	NA	NA	NA	NA	NA
mercury	1.1E-11	6.5E-07	4.2E-06	NA	NA	NA	NA	NA	NA
molybdenum	2.6E-10	8.8E-07	1.1E-06	NA	NA	NA	NA	NA	NA
nickel	6.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
selenium	2.2E-11	NA	NA	NA	NA	NA	NA	NA	NA
silver	2.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
thallium	8.8E-12	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	5.3E-08	2.0E-06	2.5E-06	NA	NA	NA	NA	NA	NA
vanadium	7.6E-10	NA	NA	NA	NA	NA	NA	NA	NA
zinc	3.7E-09	9.0E-06	1.2E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-13	6.4E-09	3.3E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable..

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TABLE A.VI–23a
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.2E−01	9.4E−01	3.3E+00	4.7E+00	1.4E+04	1.2E+05	1.7E+05	3.3E+03	NA	3.1E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.8E−02	2.8E−01	5.1E−03	1.9E−03	NA	NA	NA	NA	NA	NA	5.4E+03	9.8E+02	1.0E+01	3.8E+00	NA	NA
Pu_{238}	2.2E−01	1.4E+00	1.0E−04	8.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	3.1E+01	2.0E+02	3.7E−02	3.0E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	6.1E−02	4.6E−01	5.1E−02	3.7E−01	NA	NA	NA	NA	NA	NA	6.4E+04	1.2E+04	5.5E+02	4.0E+03	NA	NA
Ru_{106}	4.3E+00	2.7E+01	5.3E+00	6.6E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E+02	1.4E+03	2.5E+02	5.1E+03	3.9E+05	1.7E+05	3.4E+06	1.1E+04	NA	1.0E+02	5.5E+03	1.4E+03	1.5E+02	3.0E+03	NA	NA
Tc_{99}	7.9E+00	5.5E+01	8.8E+01	4.2E+02	3.4E+06	2.6E+07	1.2E+08	1.5E+04	NA	1.5E+02	5.2E+07	8.8E+06	9.0E+06	4.3E+07	NA	NA
Th_{230}	1.6E+01	1.0E+02	2.6E−01	8.8E−01	3.0E+02	3.3E+01	1.1E+02	2.4E+04	NA	2.3E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.1E+02	1.3E+03	3.4E+00	1.1E+01	8.7E+01	9.6E+00	3.2E+01	7.1E+03	NA	6.6E+01	NA	NA	NA	NA	NA	NA
U_{234}	2.3E+05	1.5E+06	3.5E+04	4.1E+05	3.7E+04	4.9E+03	5.9E+04	6.4E+04	NA	6.0E+02	2.1E+07	3.2E+06	4.8E+04	6.0E+05	NA	NA
$U_{235/236}$	NA	NA	NA	NA	9.2E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	9.6E+05	1.5E+05	2.2E+03	2.7E+04	NA	NA
U_{238+2d}	NA	NA	NA	NA	5.4E+04	7.2E+03	8.6E+04	9.3E+04	NA	8.8E+02	2.1E+07	3.1E+06	4.7E+04	5.8E+05	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.9E−09	1.7E−08	1.4E−08	1.6E−09	NA	NA	NA	NA	NA	NA	4.6E−06	1.0E−06	4.1E−07	4.9E−08	NA	1.3E−08
beryllium	2.1E−10	1.6E−09	7.8E−10	2.8E−12	7.5E−07	1.4E−06	5.2E−09	3.5E−06	1.1E−06	NA	3.9E−13	7.7E−14	1.3E−14	4.8E−17	NA	1.1E−15
cadmium	7.8E−10	9.4E−08	2.7E−08	1.9E−07	1.0E−04	3.0E−05	2.2E−04	4.7E−06	1.5E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E−09	4.2E−08	7.1E−08	7.7E−08	3.8E−05	1.2E−04	1.3E−04	5.8E−05	1.9E−05	NA	4.4E−05	1.3E−05	7.0E−06	7.7E−06	NA	2.6E−07
nickel	4.0E−09	2.3E−07	2.2E−07	1.5E−07	5.1E−04	5.1E−04	3.4E−04	5.8E−05	9.3E−07	NA	NA	NA	NA	NA	NA	NA
benzene	1.1E−15	1.3E−14	5.0E−18	6.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.5E−12	7.3E−12	1.3E−12	3.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	6.5E−13	1.4E−11	1.5E−13	1.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E−15	5.9E−14	1.3E−17	1.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−12	6.4E−12	1.2E−16	2.5E−16	1.3E−05	3.4E−10	6.9E−10	1.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	5.2E−13	3.3E−12	2.2E−14	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.1E−14	1.7E−13	8.3E−18	1.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.1E−07	3.5E−06	2.6E−08	3.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.4E−07	1.2E−05	9.9E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.7E−12	3.8E−11	4.8E−11	6.1E−11	4.2E−07	1.0E−06	1.3E−06	1.4E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.4E−12	4.1E−11	1.4E−10	1.8E−10	1.9E−07	1.6E−06	2.1E−06	1.2E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.5E−12	4.2E−11	1.5E−10	1.9E−10	2.2E−07	2.0E−06	2.5E−06	1.4E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.7E−12	3.7E−11	7.7E−10	9.7E−10	9.9E−08	8.2E−06	1.0E−05	1.6E−07	1.5E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	5.6E−12	3.8E−11	4.9E−11	6.2E−11	4.9E−07	1.2E−06	1.5E−06	1.6E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.0E−12	1.3E−11	2.5E−10	3.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.1E−12	2.6E−11	2.8E−10	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.2E−11	2.8E−10	1.6E−09	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.3E−13	1.3E−12	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.1E−14	3.6E−13	5.0E−12	6.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.4E−14	1.7E−13	2.4E−13	3.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.6E−15	2.3E−14	2.1E−14	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E−15	4.4E−14	4.3E−15	5.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.5E−16	2.7E−15	2.1E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E−16	1.6E−15	1.8E−12	2.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–23b
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	5.6E−02	4.5E−01	1.6E+00	2.3E+00	1.6E+04	1.4E+05	2.0E+05	3.8E+03	NA	3.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.7E−02	1.3E−01	2.3E−03	8.5E−04	NA	NA	NA	NA	NA	NA	1.1E+00	2.0E−01	2.0E−03	7.5E−04	NA	NA
Pu_{238}	4.1E−01	2.6E+00	1.9E−04	1.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	8.2E−02	5.2E−01	9.8E−05	7.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.8E+01	2.1E+02	2.3E+01	1.7E+02	NA	NA	NA	NA	NA	NA	5.2E+04	9.6E+03	4.5E+02	3.3E+03	NA	NA
Ru_{106}	5.6E−02	3.5E−01	6.9E−02	8.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−01	1.3E+00	2.3E−01	4.7E+00	1.6E+05	6.9E+04	1.4E+06	4.4E+03	NA	4.2E+01	5.6E−03	1.5E−03	1.5E−04	3.0E−03	NA	NA
Tc_{99}	8.1E−01	5.7E+00	9.1E+00	4.3E+01	1.2E+06	9.7E+06	4.5E+07	5.7E+03	NA	5.4E+01	2.2E+06	3.7E+05	3.8E+05	1.8E+06	NA	NA
Th_{230}	2.6E+01	1.6E+02	4.2E−01	1.4E+00	1.4E+02	1.5E+01	5.0E+01	1.1E+04	NA	1.0E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.7E+00	1.1E+01	2.8E−02	9.5E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.6E+01	3.0E+02	6.9E+00	8.3E+01	9.7E+03	1.3E+03	1.6E+04	1.7E+04	NA	1.6E+02	6.3E+02	9.5E+01	1.4E+00	1.8E+01	NA	NA
U_{235236}	4.1E+00	2.6E+01	6.0E−01	7.3E+00	NA	NA	NA	NA	NA	NA	2.8E+01	4.3E+00	6.5E−02	8.0E−01	NA	NA
U_{238+2d}	5.3E+01	3.4E+02	7.9E+00	9.5E+01	1.1E+04	1.4E+03	1.7E+04	1.9E+04	NA	1.8E+02	6.1E+02	9.3E+01	1.4E+00	1.7E+01	NA	NA
Rn_{222+4d}	2.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.8E−10	6.7E−09	5.4E−09	6.5E−10	NA	NA	NA	NA	NA	NA	3.7E−06	8.1E−07	3.3E−07	4.0E−08	NA	1.1E−08
beryllium	7.8E−11	6.2E−10	2.9E−10	1.1E−12	4.0E−07	7.6E−07	2.7E−09	1.8E−06	5.8E−07	NA	NA	NA	NA	NA	NA	NA
cadmium	4.0E−10	4.9E−08	1.4E−08	1.0E−07	9.1E−05	2.7E−05	2.0E−04	4.2E−06	1.3E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.5E−09	1.7E−08	2.9E−08	3.1E−08	2.8E−05	8.5E−05	9.3E−05	4.2E−05	1.4E−05	NA	1.5E−09	4.5E−10	2.4E−10	2.6E−10	NA	8.6E−12
nickel	1.9E−09	1.1E−07	1.0E−07	7.0E−08	4.6E−04	4.7E−04	3.1E−04	5.3E−05	8.5E−07	NA	NA	NA	NA	NA	NA	NA
benzene	1.6E−15	1.8E−14	7.1E−18	9.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−12	6.0E−12	1.1E−12	2.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.9E−13	6.2E−12	6.9E−14	8.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E−15	5.9E−14	1.3E−17	1.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−13	4.9E−12	9.5E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	7.1E−13	4.4E−12	2.9E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	3.0E−14	2.5E−13	1.2E−17	1.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E−06	3.0E−05	2.2E−07	2.8E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.1E−06	1.1E−04	8.4E−08	1.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.1E−12	2.7E−11	3.5E−11	4.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.0E−12	3.2E−11	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.2E−12	3.4E−11	1.2E−10	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.1E−12	3.3E−11	6.8E−10	8.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.3E−12	2.9E−11	3.8E−11	4.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.6E−12	1.0E−11	2.0E−10	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.3E−12	2.1E−11	2.2E−10	2.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.8E−12	1.4E−10	8.0E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.9E−13	1.9E−12	2.1E−10	2.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.9E−14	3.4E−13	4.7E−12	6.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	8.4E−15	5.8E−14	8.5E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.1E−15	2.0E−14	1.9E−14	2.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.2E−15	2.2E−14	2.1E−15	2.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.5E−16	3.8E−15	3.0E−12	4.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.9E−16	2.3E−15	2.7E−12	3.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–23c
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	4.3E−02	3.5E−01	1.2E+00	1.7E+00	1.2E+04	9.9E+04	1.4E+05	2.6E+03	NA	2.5E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.5E−02	1.1E−01	2.0E−03	7.4E−04	NA	NA	NA	NA	NA	NA	7.6E+03	1.4E+03	1.4E+01	5.3E+00	NA	NA
Pu_{238}	5.7E−01	3.6E+00	2.6E−04	2.1E−04	NA	NA	NA	NA	NA	NA	8.0E−06	1.2E−06	4.4E−11	3.6E−11	NA	NA
$Pu_{239/240}$	7.4E−02	4.7E−01	8.8E−05	7.0E−05	NA	NA	NA	NA	NA	NA	1.1E−05	1.7E−06	6.7E−11	5.5E−11	NA	NA
Ra_{226+8d}	1.5E+01	1.1E+02	1.3E+01	9.1E+01	NA	NA	NA	NA	NA	NA	9.9E+03	1.8E+03	8.6E+01	6.2E+02	NA	NA
Ru_{106}	3.0E−02	1.9E−01	3.7E−02	4.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−01	1.3E+00	2.3E−01	4.7E+00	3.0E+05	1.3E+05	2.6E+06	8.4E+03	NA	7.9E+01	2.9E+04	7.6E+03	7.9E+02	1.6E+04	NA	NA
Tc_{99}	1.0E+00	7.0E+00	1.1E+01	5.3E+01	NA	NA	NA	NA	NA	NA	7.2E+07	1.2E+07	1.2E+07	6.0E+07	NA	NA
Th_{230}	6.1E+01	3.9E+02	1.0E+00	3.3E+00	1.1E+02	1.2E+01	4.0E+01	8.8E+03	NA	8.3E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.6E+00	1.6E+01	4.2E−02	1.4E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.5E+01	4.2E+02	9.7E+00	1.2E+02	7.4E+03	9.9E+02	1.2E+04	1.3E+04	NA	1.2E+02	3.0E+07	4.5E+06	6.7E+04	8.3E+05	NA	NA
$U_{235/236}$	5.1E+00	3.3E+01	7.6E−01	9.1E+00	NA	NA	NA	NA	NA	NA	1.3E+06	2.0E+05	3.0E+03	3.8E+04	NA	NA
U_{238+2d}	6.7E+01	4.3E+02	1.0E+01	1.2E+02	6.9E+03	9.2E+02	1.1E+04	1.2E+04	NA	1.1E+02	2.9E+07	4.4E+06	6.5E+04	8.1E+05	NA	NA
Rn_{222+4d}	7.4E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.0E−10	5.2E−09	4.2E−09	5.0E−10	NA	NA	NA	NA	NA	NA	1.0E−08	2.2E−09	8.8E−10	1.1E−10	NA	2.9E−11
beryllium	6.5E−11	5.1E−10	2.5E−10	8.8E−13	NA	NA	NA	NA	NA	NA	6.2E−11	1.2E−11	2.1E−12	7.6E−15	NA	1.8E−13
cadmium	2.3E−10	2.7E−08	7.7E−09	5.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−09	1.2E−08	2.0E−08	2.2E−08	NA	NA	NA	NA	NA	NA	6.3E−05	1.9E−05	9.9E−06	1.1E−05	NA	3.6E−07
nickel	1.2E−09	7.1E−08	6.9E−08	4.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	4.6E−16	5.3E−15	2.1E−18	2.7E−18	NA	NA	NA	NA	NA	NA	3.2E−09	9.6E−10	2.2E−13	2.8E−13	1.2E−08	5.4E−10
bis(2−ethylhexyl)phthalate	6.3E−13	3.1E−12	5.6E−13	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.0E−13	4.3E−12	4.7E−14	6.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E−15	2.2E−14	4.9E−18	6.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5E−02	6.7E−03	9.7E−07	1.2E−06	9.5E−02	1.5E−03
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.7E−03	8.7E−04	2.4E−08	5.4E−08	2.5E−02	6.7E−04
methylene chloride	4.3E−13	2.5E−12	4.8E−17	9.8E−17	NA	NA	NA	NA	NA	NA	2.0E−12	2.8E−13	1.6E−18	3.7E−18	7.3E−12	7.5E−14
n−nitrosodiphenylamine	2.6E−13	1.6E−12	1.1E−14	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.1E−15	7.4E−14	3.6E−18	4.9E−18	NA	NA	NA	NA	NA	NA	1.1E−08	2.4E−09	6.3E−14	8.8E−14	NA	4.3E−10
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E−07	2.2E−06	1.6E−08	2.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.2E−07	7.8E−06	6.2E−09	7.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.1E−12	1.4E−11	1.8E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E−12	1.6E−11	5.4E−11	6.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E−12	1.5E−11	5.6E−11	7.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E−12	1.4E−11	2.9E−10	3.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.1E−12	1.4E−11	1.8E−11	2.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.1E−13	4.6E−12	8.9E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.5E−12	9.5E−12	1.0E−10	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.1E−12	9.8E−11	5.7E−10	7.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	5.5E−14	5.6E−13	6.2E−11	7.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	8.4E−15	1.5E−13	2.0E−12	2.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	8.4E−15	5.8E−14	8.5E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.5E−15	9.6E−15	8.9E−15	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E−15	1.6E−14	1.6E−15	2.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.2E−16	1.3E−15	1.0E−12	1.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E−16	6.9E−16	8.0E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–23d
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	3.2E−02	2.6E−01	9.4E−01	1.3E+00	1.4E+04	1.2E+05	1.7E+05	3.3E+03	NA	3.1E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−02	8.5E−02	1.5E−03	5.6E−04	NA	NA	NA	NA	NA	NA	3.4E+03	6.2E+02	6.5E+00	2.4E+00	NA	NA
Pu_{238}	3.1E−01	2.0E+00	1.5E−04	1.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.0E−02	3.2E−01	5.9E−05	4.7E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.3E+01	9.5E+01	1.1E+01	7.7E+01	NA	NA	NA	NA	NA	NA	5.7E+04	1.0E+04	5.0E+02	3.6E+03	NA	NA
Ru_{106}	3.8E−02	2.4E−01	4.7E−02	5.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.4E−02	7.5E−01	1.4E−01	2.7E+00	5.8E+05	2.5E+05	5.0E+06	1.6E+04	NA	1.5E+02	3.9E+04	1.0E+04	1.1E+03	2.1E+04	NA	NA
Tc_{99}	5.0E−01	3.5E+00	5.6E+00	2.6E+01	NA	NA	NA	NA	NA	NA	4.5E+06	7.6E+05	7.7E+05	3.7E+06	NA	NA
Th_{230}	2.0E+01	1.3E+02	3.2E−01	1.1E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.2E+00	7.4E+00	1.9E−02	6.3E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.4E+01	2.2E+02	5.0E+00	6.0E+01	6.7E+03	8.8E+02	1.1E+04	1.1E+04	NA	1.1E+02	1.9E+05	2.8E+04	4.2E+02	5.2E+03	NA	NA
$U_{235/236}$	2.9E+00	1.9E+01	4.3E−01	5.2E+00	NA	NA	NA	NA	NA	NA	8.4E+03	1.3E+03	1.9E+01	2.4E+02	NA	NA
U_{238+2d}	3.7E+01	2.4E+02	5.5E+00	6.6E+01	9.2E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	1.8E+05	2.8E+04	4.1E+02	5.1E+03	NA	NA
Rn_{222+4d}	1.6E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.8E−10	6.7E−09	5.4E−09	6.5E−10	NA	NA	NA	NA	NA	NA	1.1E−05	2.3E−06	9.3E−07	1.1E−07	NA	3.0E−08
beryllium	5.8E−11	4.6E−10	2.2E−10	7.9E−13	NA	NA	NA	NA	NA	NA	1.5E−07	2.9E−08	5.0E−09	1.8E−11	NA	4.2E−10
cadmium	2.9E−10	3.4E−08	9.7E−09	7.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−09	1.2E−08	2.0E−08	2.2E−08	NA	NA	NA	NA	NA	NA	9.2E−06	2.8E−06	1.5E−06	1.6E−06	NA	5.3E−08
nickel	1.4E−09	8.2E−08	8.0E−08	5.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	4.5E−16	5.1E−15	2.0E−18	2.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.6E−13	2.8E−12	5.0E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.2E−13	2.6E−12	2.9E−14	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E−15	1.9E−14	4.2E−18	5.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E−13	1.8E−12	3.5E−17	7.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	3.2E−13	2.0E−12	1.3E−14	1.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.1E−15	7.4E−14	3.6E−18	4.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E−06	1.0E−05	7.6E−08	9.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.5E−06	3.7E−05	3.0E−08	3.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E−12	1.0E−11	1.3E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E−12	1.2E−11	4.1E−11	5.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.9E−12	1.2E−11	4.4E−11	5.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.7E−12	1.1E−11	2.4E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.6E−12	1.1E−11	1.4E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.6E−13	3.6E−12	7.0E−11	8.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.2E−12	7.5E−12	7.9E−11	1.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	2.5E−12	6.0E−11	3.5E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	5.4E−14	5.5E−13	6.1E−11	7.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	6.5E−15	1.1E−13	1.6E−12	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	4.1E−15	2.9E−14	4.2E−14	5.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.4E−15	9.1E−15	8.5E−15	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E−15	1.0E−14	1.0E−15	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.7E−16	1.6E−15	1.2E−12	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.1E−16	6.5E−16	7.6E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–23e
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.1E−01	8.7E−01	3.1E+00	4.4E+00	1.7E+04	1.4E+05	2.0E+05	3.8E+03	NA	3.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.1E−02	2.3E−01	4.2E−03	1.5E−03	NA	NA	NA	NA	NA	NA	1.5E−06	2.7E−07	2.8E−09	1.0E−09	NA	NA
Pu_{238}	7.5E−01	4.8E+00	3.5E−04	2.8E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.4E−01	8.8E−01	1.7E−04	1.3E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	9.4E+01	7.0E+02	7.9E+01	5.7E+02	NA	NA	NA	NA	NA	NA	4.3E−11	7.9E−12	3.7E−13	2.7E−12	NA	NA
Ru_{106}	6.3E−02	3.9E−01	7.8E−02	9.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.0E−01	3.0E+00	5.5E−01	1.1E+01	8.3E+05	3.6E+05	7.2E+06	2.3E+04	NA	2.2E+02	4.6E−06	1.2E−06	1.3E−07	2.5E−06	NA	NA
Tc_{99}	2.2E+00	1.5E+01	2.5E+01	1.2E+02	1.7E+06	1.3E+07	6.3E+07	7.9E+03	NA	7.5E+01	2.9E+02	4.9E+01	5.0E+01	2.4E+02	NA	NA
Th_{230}	1.1E+02	7.4E+02	1.9E+00	6.2E+00	9.6E+01	1.1E+01	3.5E+01	7.8E+03	NA	7.4E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.6E+00	3.0E+01	7.6E−02	2.5E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.1E+02	6.8E+02	1.6E+01	1.9E+02	1.7E+04	2.3E+03	2.7E+04	3.0E+04	NA	2.8E+02	8.2E+02	1.2E+02	1.9E+00	2.3E+01	NA	NA
$U_{235/236}$	8.5E+00	5.4E+01	1.3E+00	1.5E+01	1.8E+03	2.4E+02	2.9E+03	3.1E+03	NA	2.9E+01	3.7E+01	5.7E+00	8.5E−02	1.1E+00	NA	NA
U_{238+2d}	1.1E+02	7.2E+02	1.7E+01	2.0E+02	1.7E+04	2.3E+03	2.8E+04	3.0E+04	NA	2.8E+02	8.0E+02	1.2E+02	1.8E+00	2.3E+01	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.2E−09	1.0E−08	8.1E−09	9.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E−10	1.2E−09	5.6E−10	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.6E−10	6.8E−08	1.9E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.6E−09	2.9E−08	5.0E−08	5.4E−08	NA	NA	NA	NA	NA	NA	6.5E−17	1.9E−17	1.0E−17	1.1E−17	NA	3.7E−19
nickel	3.0E−09	1.8E−07	1.7E−07	1.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.9E−15	3.3E−14	1.3E−17	1.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.5E−12	1.2E−11	2.2E−12	4.9E−12	7.0E−07	2.9E−07	6.6E−07	1.8E−07	2.4E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	9.1E−13	1.9E−11	2.1E−13	2.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.4E−14	1.2E−13	2.6E−17	3.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.9E−12	1.7E−11	3.3E−16	6.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	7.1E−13	4.4E−12	2.9E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	5.6E−14	4.6E−13	2.2E−17	3.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E−07	8.3E−06	6.0E−08	7.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.0E−06	3.0E−05	2.4E−08	3.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	9.7E−12	6.4E−11	8.2E−11	1.0E−10	8.1E−07	2.0E−06	2.5E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.2E−11	7.6E−11	2.6E−10	3.4E−10	4.5E−07	3.8E−06	4.8E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.0E−11	6.7E−11	2.4E−10	3.1E−10	4.4E−07	3.9E−06	5.0E−06	2.7E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E−11	7.6E−11	1.6E−09	2.0E−09	2.3E−07	1.9E−05	2.4E−05	3.7E−07	3.5E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	8.4E−12	5.7E−11	7.4E−11	9.4E−11	1.2E−06	2.9E−06	3.6E−06	3.9E−07	3.8E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.9E−12	2.5E−11	4.8E−10	6.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.5E−12	4.1E−11	4.4E−10	5.5E−10	1.5E−07	5.2E−06	6.7E−06	1.7E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.7E−11	4.0E−10	2.3E−09	2.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	3.4E−13	3.5E−12	3.9E−10	4.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	3.4E−14	6.0E−13	8.4E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.5E−14	1.0E−13	1.5E−13	1.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.2E−15	2.0E−14	1.9E−14	2.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.5E−15	3.0E−14	3.0E−15	3.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	7.8E−16	4.6E−15	3.5E−12	5.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.1E−16	4.2E−15	4.9E−12	7.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–23f
INTAKES FOR CARCINOGENS FOR RME OFF–PROPERTY FARMER
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	5.0E−02	4.0E−01	1.4E+00	2.0E+00	1.7E+04	1.4E+05	2.0E+05	3.8E+03	NA	3.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.6E−02	1.2E−01	2.2E−03	7.9E−04	NA	NA	NA	NA	NA	NA	3.8E+03	7.0E+02	7.3E+00	2.7E+00	NA	NA
Pu_{238}	6.6E−01	4.2E+00	3.1E−04	2.5E−04	NA	NA	NA	NA	NA	NA	7.6E−14	1.1E−14	4.2E−19	3.5E−19	NA	NA
$Pu_{239/240}$	8.8E−02	5.6E−01	1.0E−04	8.4E−05	NA	NA	NA	NA	NA	NA	1.5E−11	2.3E−12	9.2E−17	7.6E−17	NA	NA
Ra_{226+8d}	1.7E+01	1.3E+02	1.5E+01	1.0E+02	NA	NA	NA	NA	NA	NA	3.5E+02	6.3E+01	3.0E+00	2.2E+01	NA	NA
Ru_{106}	3.1E−02	1.9E−01	3.9E−02	4.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.5E−01	1.5E+00	2.8E−01	5.5E+00	8.3E+05	3.6E+05	7.2E+06	2.3E+04	NA	2.2E+02	6.8E+02	1.8E+02	1.8E+01	3.7E+02	NA	NA
Tc_{99}	1.7E+00	1.2E+01	1.9E+01	9.2E+01	1.7E+06	1.3E+07	6.3E+07	7.9E+03	NA	7.5E+01	3.4E+07	5.7E+06	5.8E+06	2.8E+07	NA	NA
Th_{230}	6.4E+01	4.1E+02	1.0E+00	3.5E+00	9.6E+01	1.1E+01	3.5E+01	7.8E+03	NA	7.4E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.9E+00	1.9E+01	4.7E−02	1.6E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	8.2E+01	5.3E+02	1.2E+01	1.5E+02	1.7E+04	2.3E+03	2.7E+04	3.0E+04	NA	2.8E+02	1.5E+07	2.2E+06	3.3E+04	4.1E+05	NA	NA
$U_{235/26}$	6.3E+00	4.0E+01	9.3E−01	1.1E+01	1.8E+03	2.4E+02	2.9E+03	3.1E+03	NA	2.9E+01	6.7E+05	1.0E+05	1.5E+03	1.9E+04	NA	NA
U_{238+2d}	8.2E+01	5.3E+02	1.2E+01	1.5E+02	1.7E+04	2.3E+03	2.8E+04	3.0E+04	NA	2.8E+02	1.4E+07	2.2E+06	3.2E+04	4.0E+05	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.1E−10	7.9E−09	6.3E−09	7.6E−10	NA	NA	NA	NA	NA	NA	2.8E−18	6.2E−19	2.5E−19	3.0E−20	NA	8.2E−21
beryllium	9.7E−11	7.7E−10	3.7E−10	1.3E−12	NA	NA	NA	NA	NA	NA	5.2E−22	1.0E−22	1.7E−23	6.3E−26	NA	1.5E−24
cadmium	3.6E−10	4.3E−08	1.2E−08	8.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.7E−09	1.9E−08	3.2E−08	3.5E−08	NA	NA	NA	NA	NA	NA	3.1E−05	9.2E−06	4.9E−06	5.4E−06	NA	1.8E−07
nickel	1.9E−09	1.1E−07	1.0E−07	7.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	6.0E−16	6.9E−15	2.7E−18	3.5E−18	NA	NA	NA	NA	NA	NA	1.3E−10	3.9E−11	8.7E−15	1.1E−14	4.8E−10	2.2E−11
bis(2−ethylhexyl)phthalate	7.8E−13	3.8E−12	6.9E−13	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.1E−13	6.6E−12	7.3E−14	9.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.5E−15	2.9E−14	6.4E−18	8.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4E−03	1.7E−03	2.4E−07	3.1E−07	2.4E−02	3.8E−04
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E−03	2.3E−04	6.3E−09	1.4E−08	6.6E−03	1.8E−04
methylene chloride	6.1E−13	3.6E−12	6.9E−17	1.4E−16	NA	NA	NA	NA	NA	NA	3.5E−18	4.9E−19	2.9E−24	6.6E−24	1.3E−17	1.3E−19
n−nitrosodiphenylamine	2.9E−13	1.8E−12	1.2E−14	1.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.2E−14	9.5E−14	4.7E−18	6.3E−18	NA	NA	NA	NA	NA	NA	3.0E−10	6.2E−11	1.6E−15	2.3E−15	NA	1.1E−11
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E−07	2.3E−06	1.7E−08	2.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.5E−07	8.2E−06	6.5E−09	8.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.8E−12	1.8E−11	2.4E−11	3.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.2E−12	2.1E−11	7.2E−11	9.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E−12	2.0E−11	7.4E−11	9.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.9E−12	1.9E−11	3.9E−10	5.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.7E−12	1.8E−11	2.3E−11	3.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.7E−13	6.2E−12	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.0E−12	1.3E−11	1.4E−10	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.1E−12	1.2E−10	7.0E−10	8.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	7.1E−14	7.3E−13	8.1E−11	1.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.0E−14	1.8E−13	2.5E−12	3.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	9.7E−15	6.7E−14	9.9E−14	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.7E−15	1.1E−14	1.0E−14	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E−15	1.8E−14	1.8E−15	2.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.5E−16	1.5E−15	1.1E−12	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E−16	8.8E−16	1.0E−12	1.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-23g
INTAKES FOR CARCINOGENS FOR RME OFF-PROPERTY FARMER AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	8.5E-02	6.8E-01	2.4E+00	3.4E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.1E-02	1.5E-01	2.8E-03	1.0E-03	2.3E-02	4.1E-03	4.3E-05	1.6E-05	NA	NA
Pu_{238}	6.0E-01	3.8E+00	2.8E-04	2.2E-04	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.1E-01	6.9E-01	1.3E-04	1.0E-04	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.4E+01	4.0E+02	4.6E+01	3.3E+02	4.3E-11	7.8E-12	3.7E-13	2.7E-12	NA	NA
Ru_{106}	3.9E-02	2.5E-01	4.9E-02	6.1E-05	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.0E-01	3.0E+00	5.5E-01	1.1E+01	1.6E-01	4.1E-02	4.3E-03	8.6E-02	NA	NA
Tc_{99}	3.9E+00	2.8E+01	4.4E+01	2.1E+02	9.2E+04	1.6E+04	1.6E+04	7.6E+04	NA	NA
Th_{230}	1.7E+02	1.1E+03	2.8E+00	9.4E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.2E+00	3.3E+01	8.5E-02	2.8E-01	NA	NA	NA	NA	NA	NA
U_{234}	1.1E+02	7.1E+02	1.7E+01	2.0E+02	2.1E+04	3.3E+03	4.9E+01	6.0E+02	NA	NA
$U_{235/236}$	7.9E+00	5.0E+01	1.2E+00	1.4E+01	9.8E+02	1.5E+02	2.2E+00	2.7E+01	NA	NA
U_{238+2d}	1.0E+02	6.7E+02	1.6E+01	1.9E+02	2.1E+04	3.2E+03	4.7E+01	5.9E+02	NA	NA
Rn_{222+4d}	3.9E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.1E-10	7.9E-09	6.3E-09	7.6E-10	2.6E-26	5.8E-27	2.3E-27	2.8E-28	NA	7.6E-29
beryllium	1.0E-10	8.2E-10	3.9E-10	1.4E-12	NA	NA	NA	NA	NA	NA
cadmium	4.1E-10	5.0E-08	1.4E-08	1.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.9E-09	2.1E-08	3.6E-08	3.9E-08	1.6E-11	4.6E-12	2.4E-12	2.7E-12	NA	8.9E-14
nickel	2.1E-09	1.2E-07	1.2E-07	8.0E-08	NA	NA	NA	NA	NA	NA
benzene	1.3E-15	1.5E-14	5.9E-18	7.6E-18	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	6.3E-12	1.2E-12	2.6E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	6.4E-13	1.4E-11	1.5E-13	1.9E-13	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-15	5.9E-14	1.3E-17	1.8E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	6.9E-04	1.8E-04	2.6E-08	3.4E-08	2.6E-03	4.1E-05
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-12	7.6E-12	1.5E-16	3.0E-16	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.2E-13	2.6E-12	1.7E-14	2.4E-14	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.5E-14	2.1E-13	1.0E-17	1.4E-17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.4E-07	4.6E-06	3.3E-08	4.2E-08	NA	NA	NA	NA	NA	NA
trichloroethene	1.1E-06	1.6E-05	1.3E-08	1.7E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.1E-12	3.3E-11	4.3E-11	5.4E-11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.9E-12	3.8E-11	1.3E-10	1.7E-10	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.8E-12	3.7E-11	1.3E-10	1.7E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.8E-12	3.8E-11	7.8E-10	9.8E-10	NA	NA	NA	NA	NA	NA
chrysene	4.6E-12	3.1E-11	4.1E-11	5.2E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.9E-12	1.2E-11	2.4E-10	3.1E-10	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.7E-12	2.4E-11	2.5E-10	3.2E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	8.4E-12	2.0E-10	1.2E-09	1.5E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	1.6E-13	1.6E-12	1.8E-10	2.2E-10	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-14	2.9E-13	4.1E-12	5.2E-12	NA	NA	NA	NA	NA	NA
4,4-dde	9.7E-15	6.7E-14	9.9E-14	1.3E-13	NA	NA	NA	NA	NA	NA
chlordane	2.0E-15	1.3E-14	1.2E-14	1.5E-14	NA	NA	NA	NA	NA	NA
dieldrin	2.9E-15	2.0E-14	1.9E-15	2.5E-15	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.0E-16	2.4E-15	1.8E-12	2.6E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.3E-16	2.0E-15	2.3E-12	3.2E-12	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-23h
INTAKES FOR CARCINOGENS FOR RME OFF-PROPERTY FARMER AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways:		Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Contaminants of Concern	Inhalation									
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	8.3E-02	6.8E-01	2.4E+00	3.4E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.7E-02	2.0E-01	3.6E-03	1.3E-03	6.9E+02	1.3E+02	1.3E+00	4.8E-01	NA	NA
Pu_{238}	7.9E-01	5.0E+00	3.7E-04	2.9E-04	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.3E-01	8.1E-01	1.5E-04	1.2E-04	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.1E+01	2.3E+02	2.6E+01	1.9E+02	2.5E+03	4.6E+02	2.2E+01	1.6E+02	NA	NA
Ru_{106}	4.5E-02	2.8E-01	5.6E-02	7.0E-05	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.1E-01	3.2E+00	5.7E-01	1.1E+01	2.7E+01	6.9E+00	7.2E-01	1.4E+01	NA	NA
Tc_{99}	5.0E+00	3.5E+01	5.6E+01	2.6E+02	3.5E+06	6.0E+05	6.1E+05	2.9E+06	NA	NA
Th_{230}	1.4E+02	8.9E+02	2.3E+00	7.6E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.6E+00	3.6E+01	9.1E-02	3.0E-01	NA	NA	NA	NA	NA	NA
U_{234}	1.4E+02	8.9E+02	2.1E+01	2.5E+02	3.4E+06	5.2E+05	7.8E+03	9.6E+04	NA	NA
$U_{235/236}$	1.0E+01	6.4E+01	1.5E+00	1.8E+01	1.6E+05	2.4E+04	3.5E+02	4.4E+03	NA	NA
U_{238+2d}	1.3E+02	8.2E+02	1.9E+01	2.3E+02	3.3E+06	5.1E+05	7.6E+03	9.4E+04	NA	NA
Rn_{222+4d}	2.6E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.0E-09	9.0E-09	7.2E-09	8.7E-10	1.4E-19	3.0E-20	1.2E-20	1.5E-21	NA	4.0E-22
beryllium	1.2E-10	9.3E-10	4.4E-10	1.6E-12	NA	NA	NA	NA	NA	NA
cadmium	4.5E-10	5.5E-08	1.5E-08	1.1E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.1E-09	2.4E-08	4.0E-08	4.3E-08	3.8E-06	1.1E-06	5.9E-07	6.5E-07	NA	2.2E-08
nickel	2.3E-09	1.3E-07	1.3E-07	8.7E-08	NA	NA	NA	NA	NA	NA
benzene	9.1E-16	1.0E-14	4.1E-18	5.3E-18	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-12	5.1E-12	9.2E-13	2.1E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	6.3E-13	1.3E-11	1.5E-13	1.9E-13	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.6E-15	4.6E-14	1.0E-17	1.4E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E-13	5.7E-12	1.1E-16	2.2E-16	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.4E-13	2.7E-12	1.8E-14	2.5E-14	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.8E-14	1.5E-13	7.2E-18	9.9E-18	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.0E-07	3.4E-06	2.4E-08	3.1E-08	NA	NA	NA	NA	NA	NA
trichloroethene	7.8E-07	1.2E-05	9.2E-09	1.2E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.4E-12	2.9E-11	3.7E-11	4.7E-11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.9E-12	3.2E-11	1.1E-10	1.4E-10	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.2E-12	3.3E-11	1.2E-10	1.5E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.7E-12	3.0E-11	6.3E-10	8.0E-10	NA	NA	NA	NA	NA	NA
chrysene	4.1E-12	2.8E-11	3.7E-11	4.6E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.6E-12	1.0E-11	2.0E-10	2.6E-10	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.2E-12	2.1E-11	2.2E-10	2.8E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	6.5E-12	1.5E-10	9.0E-10	1.1E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	1.1E-13	1.1E-12	1.2E-10	1.6E-10	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-14	2.5E-13	3.5E-12	4.4E-12	NA	NA	NA	NA	NA	NA
4,4-dde	1.2E-14	8.1E-14	1.2E-13	1.5E-13	NA	NA	NA	NA	NA	NA
chlordane	2.3E-15	1.5E-14	1.4E-14	1.8E-14	NA	NA	NA	NA	NA	NA
dieldrin	3.4E-15	2.3E-14	2.3E-15	2.9E-15	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.8E-16	2.3E-15	1.7E-12	2.5E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.3E-16	1.4E-15	1.6E-12	2.3E-12	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-23i
INTAKES FOR CARCINOGENS FOR RME OFF-PROPERTY FARMER NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.6E-03	1.3E-02	4.7E-02	6.6E-02	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.9E-04	3.6E-03	6.5E-05	2.4E-05	3.3E+02	6.1E+01	6.4E-01	2.3E-01	NA	NA
Pu_{238}	1.4E-02	8.8E-02	6.5E-06	5.2E-06	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E-03	1.4E-02	2.6E-06	2.1E-06	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	8.3E-01	6.2E+00	7.0E-01	5.0E+00	1.3E-04	2.4E-05	1.1E-06	8.3E-06	NA	NA
Ru_{106}	9.2E-04	5.7E-03	1.1E-03	1.4E-06	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.1E-03	5.1E-02	9.3E-03	1.9E-01	5.5E-01	1.4E-01	1.5E-02	3.0E-01	NA	NA
Tc_{99}	6.1E-02	4.3E-01	6.9E-01	3.2E+00	4.3E+06	7.3E+05	7.4E+05	3.6E+06	NA	NA
Th_{230}	2.4E+00	1.6E+01	4.0E-02	1.3E-01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	8.9E-02	5.7E-01	1.5E-03	4.9E-03	NA	NA	NA	NA	NA	NA
U_{234}	2.1E+00	1.3E+01	3.1E-01	3.7E+00	2.1E+06	3.2E+05	4.7E+03	5.8E+04	NA	NA
$U_{235/236}$	1.5E-01	9.7E-01	2.2E-02	2.7E-01	9.4E+04	1.4E+04	2.1E+02	2.7E+03	NA	NA
U_{238+2d}	2.1E+00	1.3E+01	3.1E-01	3.7E+00	2.0E+06	3.1E+05	4.6E+03	5.7E+04	NA	NA
Rn_{222+4d}	1.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.8E-11	1.6E-10	1.3E-10	1.5E-11	NA	NA	NA	NA	NA	NA
beryllium	1.9E-12	1.5E-11	7.4E-12	2.6E-14	NA	NA	NA	NA	NA	NA
cadmium	7.8E-12	9.4E-10	2.7E-10	1.9E-09	NA	NA	NA	NA	NA	NA
chromium vi	3.5E-11	4.0E-10	6.7E-10	7.3E-10	3.7E-06	1.1E-06	5.8E-07	6.4E-07	NA	2.1E-08
nickel	4.0E-11	2.3E-09	2.2E-09	1.5E-09	NA	NA	NA	NA	NA	NA
benzene	2.4E-17	2.7E-16	1.1E-19	1.4E-19	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-14	1.1E-13	2.0E-14	4.4E-14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.0E-14	2.2E-13	2.4E-15	3.1E-15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E-16	1.0E-15	2.3E-19	3.1E-19	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E-14	1.3E-13	2.6E-18	5.2E-18	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	8.4E-15	5.3E-14	3.5E-16	4.8E-16	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.7E-16	3.9E-15	1.9E-19	2.6E-19	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E-08	1.0E-07	7.6E-10	9.7E-10	NA	NA	NA	NA	NA	NA
trichloroethene	2.5E-08	3.6E-07	2.9E-10	3.7E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	9.1E-14	6.0E-13	7.7E-13	9.8E-13	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.0E-13	6.7E-13	2.4E-12	3.0E-12	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.0E-13	6.7E-13	2.4E-12	3.1E-12	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.0E-13	6.8E-13	1.4E-11	1.8E-11	NA	NA	NA	NA	NA	NA
chrysene	8.4E-14	5.7E-13	7.4E-13	9.4E-13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.4E-14	2.2E-13	4.3E-12	5.4E-12	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.4E-14	4.1E-13	4.3E-12	5.5E-12	NA	NA	NA	NA	NA	NA
aroclor-1254	1.4E-13	3.4E-12	2.0E-11	2.5E-11	NA	NA	NA	NA	NA	NA
aroclor-1260	2.9E-15	3.0E-14	3.3E-12	4.2E-12	NA	NA	NA	NA	NA	NA
4,4-ddt	3.2E-16	5.5E-15	7.7E-14	9.8E-14	NA	NA	NA	NA	NA	NA
4,4-dde	1.9E-16	1.3E-15	1.9E-15	2.4E-15	NA	NA	NA	NA	NA	NA
chlordane	4.1E-17	2.6E-16	2.4E-16	3.1E-16	NA	NA	NA	NA	NA	NA
dieldrin	5.6E-17	3.8E-16	3.8E-17	4.8E-17	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.8E-18	4.6E-17	3.5E-14	5.0E-14	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.0E-18	3.6E-17	4.2E-14	5.9E-14	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24a
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.5E-10	2.1E-09	1.5E-14	1.9E-14	3.6E-03	3.0E-08	3.7E-08	1.0E-06	3.3E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E-06	1.2E-05	NA	NA	NA	NA	NA	4.6E-02	1.5E-02	NA	NA	NA	NA	NA	NA	NA
antimony	3.0E-09	6.1E-08	4.5E-08	1.8E-08	3.1E-05	3.1E-05	1.3E-05	7.2E-06	2.3E-06	NA	4.3E-05	2.4E-05	9.1E-06	3.6E-06	NA	1.2E-07
arsenic	1.9E-09	1.7E-08	1.4E-08	1.6E-09	NA	NA	NA	NA	NA	NA	4.6E-06	1.0E-06	4.1E-07	4.9E-08	NA	1.3E-08
barium	2.5E-08	5.6E-07	9.4E-08	8.7E-07	1.3E-03	3.0E-04	2.8E-03	5.9E-04	1.9E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E-10	1.6E-09	7.8E-10	2.8E-12	7.5E-07	1.4E-06	5.2E-09	3.5E-06	1.1E-06	NA	3.9E-13	7.7E-14	1.3E-14	4.8E-17	NA	1.1E-15
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.8E-10	9.4E-08	2.7E-08	1.9E-07	1.0E-04	3.0E-05	2.2E-04	4.7E-06	1.5E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E-09	4.2E-08	7.1E-08	7.7E-08	3.8E-05	1.2E-04	1.3E-04	5.8E-05	1.9E-05	NA	4.4E-05	1.3E-05	7.0E-06	7.7E-06	NA	2.6E-07
cobalt	1.9E-09	2.2E-08	1.5E-07	6.2E-08	5.4E-05	6.6E-04	2.7E-04	5.3E-05	1.7E-05	NA	NA	NA	NA	NA	NA	NA
copper	9.7E-09	6.7E-07	1.5E-06	9.0E-07	1.1E-03	2.5E-03	1.5E-03	2.9E-05	9.4E-07	NA	NA	NA	NA	NA	NA	NA
lead	2.4E-07	4.2E-06	7.6E-07	2.5E-06	1.5E-04	3.8E-05	1.3E-04	1.1E-04	3.6E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	6.2E-06	7.1E-05	6.3E-05	2.0E-04	1.8E+00	2.4E+00	7.7E+00	2.3E-02	7.3E-03	NA	1.4E+01	4.4E+00	2.2E+00	7.2E+00	NA	4.2E-02
manganese	1.9E-07	4.5E-06	1.1E-06	3.7E-06	7.9E-02	2.4E-02	8.2E-02	1.1E-02	3.5E-03	NA	1.2E-02	8.2E-03	9.7E-04	3.4E-03	NA	3.5E-05
mercury	7.1E-11	7.4E-10	6.0E-08	4.3E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.6E-09	2.8E-08	7.3E-08	7.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	4.0E-09	2.3E-07	2.2E-07	1.5E-07	5.1E-04	5.1E-04	3.4E-04	5.8E-05	9.3E-07	NA	NA	NA	NA	NA	NA	NA
selenium	1.4E-10	3.9E-09	1.1E-08	1.1E-08	4.9E-06	1.5E-05	1.6E-05	1.4E-06	4.3E-07	NA	NA	NA	NA	NA	NA	NA
silver	1.6E-09	6.5E-08	1.0E-07	2.7E-06	6.4E-05	1.1E-04	3.0E-03	4.4E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.4E-11	3.7E-10	6.4E-09	1.3E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	3.3E-07	2.1E-06	4.9E-08	5.9E-07	9.7E-05	1.3E-05	1.6E-04	1.7E-04	5.4E-05	NA	3.5E-02	5.3E-03	7.9E-05	9.7E-04	NA	9.9E-05
vanadium	4.7E-09	4.4E-08	3.5E-08	1.1E-09	4.2E-05	7.7E-05	2.5E-06	9.6E-05	3.1E-06	NA	NA	NA	NA	NA	NA	NA
zinc	2.3E-08	2.5E-05	6.0E-04	2.4E-04	1.4E-01	3.4E+00	1.3E+00	1.1E-03	3.4E-04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.5E-12	7.3E-12	1.3E-12	3.0E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-15	5.9E-14	1.3E-17	1.8E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.3E-06	8.5E-07	1.1E-06	3.0E-07	2.8E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-12	6.4E-12	1.2E-16	2.5E-16	1.3E-05	3.4E-10	6.9E-10	1.5E-08	1.4E-07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.5E-06	1.1E-06	1.3E-06	2.7E-07	2.6E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.8E-06	2.6E-07	3.4E-07	1.5E-07	1.4E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.1E-07	3.5E-06	2.6E-08	3.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.1E-14	3.6E-13	5.0E-12	6.4E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E-15	4.4E-14	4.3E-15	5.5E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24b
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.3E-11	4.6E-10	3.3E-15	4.2E-15	3.6E-03	3.0E-08	3.7E-08	1.0E-06	3.3E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	7.1E-07	4.5E-06	NA	NA	NA	NA	NA	2.9E-02	9.4E-03	NA	NA	NA	NA	NA	NA	NA
antimony	1.6E-09	3.2E-08	2.3E-08	9.3E-09	NA	NA	NA	NA	NA	NA	2.1E-09	1.2E-09	4.5E-10	1.8E-10	NA	6.1E-12
arsenic	7.8E-10	6.7E-09	5.4E-09	6.5E-10	NA	NA	NA	NA	NA	NA	3.7E-06	8.1E-07	3.3E-07	4.0E-08	NA	1.1E-08
barium	9.7E-09	2.1E-07	3.6E-08	3.4E-07	7.0E-04	1.6E-04	1.5E-03	3.2E-04	1.0E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	7.8E-11	6.2E-10	2.9E-10	1.1E-12	4.0E-07	7.6E-07	2.7E-09	1.8E-06	5.8E-07	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.0E-10	4.9E-08	1.4E-08	1.0E-07	9.1E-05	2.7E-05	2.0E-04	4.2E-06	1.3E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-09	1.7E-08	2.9E-08	3.1E-08	2.8E-05	8.5E-05	9.3E-05	4.2E-05	1.4E-05	NA	1.5E-09	4.5E-10	2.4E-10	2.6E-10	NA	8.6E-12
cobalt	8.4E-10	1.0E-08	6.9E-08	2.8E-08	4.1E-05	5.1E-04	2.0E-04	4.1E-05	1.3E-05	NA	NA	NA	NA	NA	NA	NA
copper	2.3E-09	1.6E-07	3.5E-07	2.1E-07	1.9E-03	4.4E-03	2.6E-03	5.1E-05	1.6E-06	NA	NA	NA	NA	NA	NA	NA
lead	1.3E-08	2.3E-07	4.1E-08	1.4E-07	9.0E-05	2.4E-05	7.9E-05	6.9E-05	2.2E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	2.2E-06	2.5E-05	2.2E-05	7.2E-05	3.2E+00	4.2E+00	1.3E+01	4.0E-02	1.3E-02	NA	4.5E+00	1.3E+00	6.9E-01	2.2E+00	NA	1.3E-02
manganese	7.1E-08	1.7E-06	4.0E-07	1.4E-06	NA	NA	NA	NA	NA	NA	2.2E-05	1.5E-05	1.8E-06	6.3E-06	NA	6.4E-08
mercury	2.1E-11	2.2E-10	1.7E-08	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	6.1E-10	1.0E-08	2.7E-08	2.7E-08	2.5E-04	9.4E-04	9.4E-04	2.9E-05	9.2E-06	NA	NA	NA	NA	NA	NA	NA
nickel	1.9E-09	1.1E-07	1.0E-07	7.0E-08	4.6E-04	4.7E-04	3.1E-04	5.3E-05	8.5E-07	NA	NA	NA	NA	NA	NA	NA
selenium	7.1E-11	2.1E-09	5.6E-09	6.0E-09	2.9E-06	8.6E-06	9.2E-06	7.9E-07	2.5E-07	NA	NA	NA	NA	NA	NA	NA
silver	6.5E-10	2.7E-08	4.2E-08	1.1E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.2E-11	2.1E-10	3.7E-09	7.4E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	8.4E-08	5.4E-07	1.3E-08	1.5E-07	1.8E-05	2.5E-06	2.9E-05	3.2E-05	1.0E-05	NA	1.0E-06	1.6E-07	2.3E-09	2.9E-08	NA	2.9E-09
vanadium	1.9E-09	1.8E-08	1.4E-08	4.4E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.0E-08	2.2E-05	5.3E-04	2.1E-04	2.6E-02	6.2E-01	2.5E-01	2.0E-04	6.3E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.2E-12	6.0E-12	1.1E-12	2.5E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-15	5.9E-14	1.3E-17	1.8E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E-13	4.9E-12	9.5E-17	1.9E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E-06	3.0E-05	2.2E-07	2.8E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.9E-14	3.4E-13	4.7E-12	6.0E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.2E-15	2.2E-14	2.1E-15	2.7E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24c
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.4E-11	4.7E-10	3.4E-15	4.3E-15	NA	NA	NA	NA	NA	NA	2.7E-02	1.0E-02	4.1E-08	5.2E-08	NA	3.5E-04
aluminum	5.6E-07	3.5E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	9.1E-10	1.9E-08	1.4E-08	5.4E-09	NA	NA	NA	NA	NA	NA	1.8E-06	1.0E-06	3.7E-07	1.5E-07	NA	5.0E-09
arsenic	6.0E-10	5.2E-09	4.2E-09	5.0E-10	NA	NA	NA	NA	NA	NA	1.0E-08	2.2E-09	8.8E-10	1.1E-10	NA	2.9E-11
barium	7.8E-09	1.7E-07	2.9E-08	2.7E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	6.5E-11	5.1E-10	2.5E-10	8.8E-13	NA	NA	NA	NA	NA	NA	6.2E-11	1.2E-11	2.1E-12	7.6E-15	NA	1.8E-13
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.3E-10	2.7E-08	7.7E-09	5.6E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E-09	1.2E-08	2.0E-08	2.2E-08	NA	NA	NA	NA	NA	NA	6.3E-05	1.9E-05	9.9E-06	1.1E-05	NA	3.6E-07
cobalt	5.8E-10	6.8E-09	4.7E-08	1.9E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.1E-09	1.4E-07	3.2E-07	1.9E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	3.5E-08	6.1E-07	1.1E-07	3.7E-07	NA	NA	NA	NA	NA	NA	2.4E-07	1.1E-07	9.3E-09	3.1E-08	NA	2.7E-12
magnesium	1.7E-06	1.9E-05	1.7E-05	5.5E-05	NA	NA	NA	NA	NA	NA	6.2E+00	1.9E+00	9.5E-01	3.1E+00	NA	1.8E-02
manganese	5.7E-08	1.4E-06	3.2E-07	1.1E-06	NA	NA	NA	NA	NA	NA	1.2E-03	8.2E-04	9.7E-05	3.4E-04	NA	3.5E-06
mercury	2.1E-11	2.2E-10	1.8E-08	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.1E-10	7.0E-09	1.8E-08	1.8E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.2E-09	7.1E-08	6.9E-08	4.6E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	5.2E-11	1.5E-09	4.1E-09	4.3E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	4.1E-10	1.7E-08	2.7E-08	7.2E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.6E-11	1.1E-10	1.8E-09	3.6E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.0E-07	6.6E-07	1.5E-08	1.9E-07	1.7E-05	2.3E-06	2.7E-05	3.0E-05	9.5E-06	NA	4.8E-02	7.3E-03	1.1E-04	1.4E-03	NA	1.4E-04
vanadium	1.4E-09	1.3E-08	9.9E-09	3.2E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.1E-09	7.8E-06	1.9E-04	7.5E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.3E-13	3.1E-12	5.6E-13	1.3E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E-04	2.7E-05	7.6E-10	9.8E-10	4.1E-04	3.5E-06
chloroform	2.7E-15	2.2E-14	4.9E-18	6.6E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E-06	5.1E-07	2.5E-11	3.3E-11	5.0E-06	1.1E-07
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5E-02	6.7E-03	9.7E-07	1.2E-06	NA	1.5E-03
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.7E-03	8.7E-04	2.4E-08	5.4E-08	NA	6.7E-04
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.3E-13	2.5E-12	4.8E-17	9.8E-17	NA	NA	NA	NA	NA	NA	2.0E-12	2.8E-13	1.6E-18	3.7E-18	7.3E-12	7.5E-14
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E-05	4.5E-06	2.0E-10	2.6E-10	NA	8.4E-07
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E-07	2.2E-06	1.6E-08	2.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	8.4E-15	1.5E-13	2.0E-12	2.6E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E-15	1.6E-14	1.6E-15	2.1E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24d
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.0E-11	2.8E-10	2.0E-15	2.5E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	5.2E-07	3.3E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.4E-09	2.8E-08	2.0E-08	8.1E-09	NA	NA	NA	NA	NA	NA	7.0E-06	4.0E-06	1.5E-06	5.9E-07	NA	2.0E-08
arsenic	7.8E-10	6.7E-09	5.4E-09	6.5E-10	NA	NA	NA	NA	NA	NA	1.1E-05	2.3E-06	9.3E-07	1.1E-07	NA	3.0E-08
barium	6.4E-09	1.4E-07	2.4E-08	2.2E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	5.8E-11	4.6E-10	2.2E-10	7.9E-13	NA	NA	NA	NA	NA	NA	1.5E-07	2.9E-08	5.0E-09	1.8E-11	NA	4.2E-10
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.9E-10	3.4E-08	9.7E-09	7.1E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E-09	1.2E-08	2.0E-08	2.2E-08	NA	NA	NA	NA	NA	NA	9.2E-06	2.8E-06	1.5E-06	1.6E-06	NA	5.3E-08
cobalt	5.7E-10	6.8E-09	4.7E-08	1.9E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.5E-09	1.0E-07	2.3E-07	1.4E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	9.7E-09	1.7E-07	3.1E-08	1.0E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	1.6E-06	1.8E-05	1.6E-05	5.1E-05	NA	NA	NA	NA	NA	NA	1.1E+00	3.3E-01	1.7E-01	5.5E-01	NA	3.2E-03
manganese	5.8E-08	1.4E-06	3.2E-07	1.1E-06	NA	NA	NA	NA	NA	NA	7.8E-03	5.3E-03	6.3E-04	2.2E-03	NA	2.2E-05
mercury	1.4E-11	1.5E-10	1.2E-08	8.6E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	3.6E-10	6.1E-09	1.6E-08	1.6E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.4E-09	8.2E-08	8.0E-08	5.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	4.7E-11	1.4E-09	3.7E-09	4.0E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	4.9E-10	2.1E-08	3.2E-08	8.5E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.9E-11	1.3E-10	2.3E-09	4.5E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	6.0E-08	3.9E-07	9.0E-09	1.1E-07	1.6E-05	2.1E-06	2.5E-05	2.7E-05	8.7E-06	NA	3.0E-04	4.6E-05	6.9E-07	8.5E-06	NA	8.7E-07
vanadium	1.3E-09	1.2E-08	9.5E-09	3.0E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.1E-09	7.8E-06	1.9E-04	7.5E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.6E-13	2.8E-12	5.0E-13	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E-15	1.9E-14	4.2E-18	5.7E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E-13	1.8E-12	3.5E-17	7.1E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E-06	1.0E-05	7.6E-08	9.7E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	6.5E-15	1.1E-13	1.6E-12	2.0E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E-15	1.0E-14	1.0E-15	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24e
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.5E-11	9.1E-10	6.5E-15	8.2E-15	3.7E-03	3.0E-08	3.8E-08	1.1E-06	3.4E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E-06	7.4E-06	NA	NA	NA	NA	NA	2.2E-02	7.1E-03	NA	NA	NA	NA	NA	NA	NA
antimony	1.7E-09	3.6E-08	2.6E-08	1.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	1.2E-09	1.0E-08	8.1E-09	9.8E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.7E-08	3.8E-07	6.5E-08	6.0E-07	6.4E-04	1.5E-04	1.4E-03	2.9E-04	9.4E-05	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E-10	1.2E-09	5.6E-10	2.0E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.6E-10	6.8E-08	1.9E-08	1.4E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.6E-09	2.9E-08	5.0E-08	5.4E-08	NA	NA	NA	NA	NA	NA	6.5E-17	1.9E-17	1.0E-17	1.1E-17	NA	3.7E-19
cobalt	1.3E-09	1.5E-08	1.1E-07	4.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.7E-09	3.9E-07	8.8E-07	5.3E-07	1.5E-03	3.5E-03	2.1E-03	4.1E-05	1.3E-06	NA	NA	NA	NA	NA	NA	NA
lead	4.1E-08	7.1E-07	1.3E-07	4.3E-07	9.2E-05	2.4E-05	8.1E-05	7.0E-05	2.2E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	3.4E-06	3.9E-05	3.4E-05	1.1E-04	6.0E-01	7.9E-01	2.5E+00	7.5E-03	2.4E-03	NA	1.7E-14	5.1E-15	2.6E-15	8.4E-15	NA	4.8E-17
manganese	1.2E-07	2.8E-06	6.5E-07	2.3E-06	2.7E-02	8.1E-03	2.8E-02	3.7E-03	1.2E-03	NA	1.0E-20	7.0E-21	8.3E-22	2.9E-21	NA	3.0E-23
mercury	4.7E-11	4.9E-10	4.0E-08	2.9E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.2E-09	2.0E-08	5.2E-08	5.2E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	3.0E-09	1.8E-07	1.7E-07	1.1E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.0E-10	3.0E-09	8.1E-09	8.7E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	9.7E-10	4.1E-08	6.3E-08	1.7E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	4.7E-11	3.2E-10	5.5E-09	1.1E-09	4.6E-08	9.2E-06	1.8E-06	7.9E-07	2.5E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.7E-07	1.1E-06	2.5E-08	3.0E-07	2.9E-05	3.8E-06	4.6E-05	5.0E-05	1.6E-05	NA	1.3E-06	2.0E-07	3.0E-09	3.8E-08	NA	3.9E-09
vanadium	3.1E-09	2.9E-08	2.3E-08	7.3E-10	2.9E-05	5.3E-05	1.7E-06	6.6E-05	2.1E-06	NA	NA	NA	NA	NA	NA	NA
zinc	3.2E-08	3.5E-05	8.4E-04	3.3E-04	3.7E-02	8.9E-01	3.6E-01	2.8E-04	9.1E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.5E-12	1.2E-11	2.2E-12	4.9E-12	7.0E-07	2.9E-07	6.6E-07	1.8E-07	2.4E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.4E-14	1.2E-13	2.6E-17	3.6E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	7.4E-06	2.8E-06	3.5E-06	9.6E-07	9.2E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.9E-12	1.7E-11	3.3E-16	6.7E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.9E-06	2.7E-06	3.4E-06	6.9E-07	6.6E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	8.5E-06	1.2E-06	1.6E-06	6.7E-07	6.4E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-07	8.3E-06	6.0E-08	7.7E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.4E-14	6.0E-13	8.4E-12	1.1E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.5E-15	3.0E-14	3.0E-15	3.8E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24f
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.5E-11	9.1E-10	6.5E-15	8.2E-15	NA	NA	NA	NA	NA	NA	7.5E-03	2.8E-03	1.1E-08	1.5E-08	NA	9.8E-05
aluminum	8.4E-07	5.3E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.4E-09	2.8E-08	2.0E-08	8.1E-09	NA	NA	NA	NA	NA	NA	1.2E-08	7.0E-09	2.6E-09	1.0E-09	NA	3.6E-11
arsenic	9.1E-10	7.9E-09	6.3E-09	7.6E-10	NA	NA	NA	NA	NA	NA	2.8E-18	6.2E-19	2.5E-19	3.0E-20	NA	8.2E-21
barium	1.2E-08	2.6E-07	4.3E-08	4.0E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	9.7E-11	7.7E-10	3.7E-10	1.3E-12	NA	NA	NA	NA	NA	NA	5.2E-22	1.0E-22	1.7E-23	6.3E-26	NA	1.5E-24
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.6E-10	4.3E-08	1.2E-08	8.9E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.7E-09	1.9E-08	3.2E-08	3.5E-08	NA	NA	NA	NA	NA	NA	3.1E-05	9.2E-06	4.9E-06	5.4E-06	NA	1.8E-07
cobalt	8.4E-10	1.0E-08	6.9E-08	2.8E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	4.3E-09	3.0E-07	6.6E-07	4.0E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	1.0E-07	1.8E-06	3.3E-07	1.1E-06	NA	NA	NA	NA	NA	NA	6.4E-12	3.1E-12	2.5E-13	8.3E-13	NA	7.4E-17
magnesium	2.8E-06	3.2E-05	2.8E-05	9.1E-05	NA	NA	NA	NA	NA	NA	4.3E+00	1.3E+00	6.6E-01	2.1E+00	NA	1.2E-02
manganese	8.4E-08	2.0E-06	4.7E-07	1.6E-06	NA	NA	NA	NA	NA	NA	6.8E-05	4.6E-05	5.5E-06	1.9E-05	NA	2.0E-07
mercury	3.0E-11	3.2E-10	2.6E-08	1.8E-10	NA	NA	NA	NA	NA	NA	1.6E-11	4.3E-12	2.0E-10	1.4E-12	NA	4.6E-14
molybdenum	7.1E-10	1.2E-08	3.2E-08	3.2E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.9E-09	1.1E-07	1.0E-07	7.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	6.5E-11	1.9E-09	5.1E-09	5.4E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	7.1E-10	3.0E-08	4.6E-08	1.2E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.5E-11	1.7E-10	3.0E-09	5.9E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.3E-07	8.3E-07	1.9E-08	2.3E-07	1.6E-05	2.1E-06	2.5E-05	2.7E-05	8.7E-06	NA	2.4E-02	3.6E-03	5.4E-05	6.7E-04	NA	6.9E-05
vanadium	2.1E-09	2.0E-08	1.6E-08	5.0E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.0E-08	1.1E-05	2.7E-04	1.1E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.8E-13	3.8E-12	6.9E-13	1.6E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.9E-12	1.7E-12	4.9E-17	6.3E-17	2.6E-11	2.2E-13
chloroform	3.5E-15	2.9E-14	6.4E-18	8.7E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.1E-10	1.6E-10	7.8E-15	1.0E-14	1.6E-09	3.5E-11
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4E-03	1.7E-03	2.4E-07	3.1E-07	NA	3.8E-04
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E-03	2.3E-04	6.3E-09	1.4E-08	NA	1.8E-04
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.1E-13	3.6E-12	6.9E-17	1.4E-16	NA	NA	NA	NA	NA	NA	3.5E-18	4.9E-19	2.9E-24	6.6E-24	1.3E-17	1.3E-19
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3E-06	2.3E-06	1.0E-10	1.3E-10	NA	4.3E-07
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E-07	2.3E-06	1.7E-08	2.1E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.0E-14	1.8E-13	2.5E-12	3.2E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E-15	1.8E-14	1.8E-15	2.3E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-24g
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.5E-11	7.7E-10	5.5E-15	7.0E-15	NA	NA	NA	NA	NA	NA
aluminum	8.4E-07	5.3E-06	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.5E-09	3.1E-08	2.2E-08	8.9E-09	3.7E-15	2.1E-15	7.8E-16	3.1E-16	NA	1.1E-17
arsenic	9.1E-10	7.9E-09	6.3E-09	7.6E-10	2.6E-26	5.8E-27	2.3E-27	2.8E-28	NA	7.6E-29
barium	1.2E-08	2.6E-07	4.3E-08	4.0E-07	NA	NA	NA	NA	NA	NA
beryllium	1.0E-10	8.2E-10	3.9E-10	1.4E-12	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.1E-10	5.0E-08	1.4E-08	1.0E-07	NA	NA	NA	NA	NA	NA
chromium vi	1.9E-09	2.1E-08	3.6E-08	3.9E-08	1.6E-11	4.6E-12	2.4E-12	2.7E-12	NA	8.9E-14
cobalt	9.1E-10	1.1E-08	7.4E-08	3.0E-08	NA	NA	NA	NA	NA	NA
copper	3.6E-09	2.5E-07	5.6E-07	3.4E-07	NA	NA	NA	NA	NA	NA
lead	4.9E-08	8.6E-07	1.6E-07	5.2E-07	NA	NA	NA	NA	NA	NA
magnesium	2.9E-06	3.3E-05	3.0E-05	9.5E-05	3.2E-08	9.5E-09	4.8E-09	1.6E-08	NA	9.1E-11
manganese	9.1E-08	2.2E-06	5.1E-07	1.8E-06	1.2E-09	8.1E-10	9.6E-11	3.4E-10	NA	3.5E-12
mercury	3.6E-11	3.7E-10	3.0E-08	2.1E-10	NA	NA	NA	NA	NA	NA
molybdenum	7.1E-10	1.2E-08	3.2E-08	3.2E-08	NA	NA	NA	NA	NA	NA
nickel	2.1E-09	1.2E-07	1.2E-07	8.0E-08	NA	NA	NA	NA	NA	NA
selenium	6.5E-11	1.9E-09	5.1E-09	5.4E-09	NA	NA	NA	NA	NA	NA
silver	6.5E-10	2.7E-08	4.2E-08	1.1E-06	NA	NA	NA	NA	NA	NA
thallium	3.0E-11	2.0E-10	3.5E-09	7.0E-10	NA	NA	NA	NA	NA	NA
uranium-total	1.6E-07	1.0E-06	2.3E-08	2.8E-07	3.5E-05	5.3E-06	8.0E-08	9.9E-07	NA	1.0E-07
vanadium	2.2E-09	2.1E-08	1.6E-08	5.1E-10	NA	NA	NA	NA	NA	NA
zinc	1.7E-08	1.8E-05	4.4E-04	1.8E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	6.3E-12	1.2E-12	2.6E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-15	5.9E-14	1.3E-17	1.8E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	6.9E-04	1.8E-04	2.6E-08	3.4E-08	NA	4.1E-05
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-12	7.6E-12	1.5E-16	3.0E-16	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.4E-07	4.6E-06	3.3E-08	4.2E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-14	2.9E-13	4.1E-12	5.2E-12	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.9E-15	2.0E-14	1.9E-15	2.5E-15	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24h
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.5E-11	9.1E-10	6.5E-15	8.2E-15	NA	NA	NA	NA	NA	NA
aluminum	9.7E-07	6.1E-06	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.7E-09	3.6E-08	2.6E-08	1.0E-08	8.8E-09	5.0E-09	1.9E-09	7.5E-10	NA	2.5E-11
arsenic	1.0E-09	9.0E-09	7.2E-09	8.7E-10	1.4E-19	3.0E-20	1.2E-20	1.5E-21	NA	4.0E-22
barium	1.4E-08	3.0E-07	5.0E-08	4.7E-07	NA	NA	NA	NA	NA	NA
beryllium	1.2E-10	9.3E-10	4.4E-10	1.6E-12	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.5E-10	5.5E-08	1.5E-08	1.1E-07	NA	NA	NA	NA	NA	NA
chromium vi	2.1E-09	2.4E-08	4.0E-08	4.3E-08	3.8E-06	1.1E-06	5.9E-07	6.5E-07	NA	2.2E-08
cobalt	1.0E-09	1.2E-08	8.5E-08	3.4E-08	NA	NA	NA	NA	NA	NA
copper	4.1E-09	2.9E-07	6.4E-07	3.9E-07	NA	NA	NA	NA	NA	NA
lead	7.8E-08	1.4E-06	2.5E-07	8.2E-07	NA	NA	NA	NA	NA	NA
magnesium	3.4E-06	3.9E-05	3.5E-05	1.1E-04	1.2E+00	3.7E-01	1.9E-01	6.1E-01	NA	3.5E-03
manganese	1.0E-07	2.5E-06	5.8E-07	2.0E-06	2.2E-05	1.5E-05	1.7E-06	6.1E-06	NA	6.3E-08
mercury	4.3E-11	4.4E-10	3.6E-08	2.6E-10	3.7E-12	1.0E-12	4.6E-11	3.4E-13	NA	1.1E-14
molybdenum	8.4E-10	1.5E-08	3.8E-08	3.8E-08	NA	NA	NA	NA	NA	NA
nickel	2.3E-09	1.3E-07	1.3E-07	8.7E-08	NA	NA	NA	NA	NA	NA
selenium	7.1E-11	2.1E-09	5.6E-09	6.0E-09	NA	NA	NA	NA	NA	NA
silver	7.8E-10	3.3E-08	5.0E-08	1.3E-06	NA	NA	NA	NA	NA	NA
thallium	3.1E-11	2.1E-10	3.6E-09	7.3E-10	NA	NA	NA	NA	NA	NA
uranium-total	1.9E-07	1.2E-06	2.9E-08	3.5E-07	5.6E-03	8.5E-04	1.3E-05	1.6E-04	NA	1.6E-05
vanadium	2.5E-09	2.3E-08	1.8E-08	5.8E-10	NA	NA	NA	NA	NA	NA
zinc	1.4E-08	1.6E-05	3.8E-04	1.5E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-12	5.1E-12	9.2E-13	2.1E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.6E-15	4.6E-14	1.0E-17	1.4E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E-13	5.7E-12	1.1E-16	2.2E-16	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.0E-07	3.4E-06	2.4E-08	3.1E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-14	2.5E-13	3.5E-12	4.4E-12	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.4E-15	2.3E-14	2.3E-15	2.9E-15	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-24i
INTAKES FOR TOXICANTS FOR RME OFF-PROPERTY FARMER
NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.0E-12	1.4E-11	1.0E-16	1.3E-16	NA	NA	NA	NA	NA	NA
aluminum	1.6E-08	1.0E-07	NA	NA	NA	NA	NA	NA	NA	NA
antimony	3.0E-11	6.2E-10	4.6E-10	1.8E-10	3.5E-18	2.0E-18	7.3E-19	2.9E-19	NA	9.9E-21
arsenic	1.8E-11	1.6E-10	1.3E-10	1.5E-11	NA	NA	NA	NA	NA	NA
barium	2.3E-10	5.1E-09	8.6E-10	8.1E-09	NA	NA	NA	NA	NA	NA
beryllium	1.9E-12	1.5E-11	7.4E-12	2.6E-14	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.8E-12	9.4E-10	2.7E-10	1.9E-09	NA	NA	NA	NA	NA	NA
chromium vi	3.5E-11	4.0E-10	6.7E-10	7.3E-10	3.7E-06	1.1E-06	5.8E-07	6.4E-07	NA	2.1E-08
cobalt	1.7E-11	2.0E-10	1.4E-09	5.5E-10	NA	NA	NA	NA	NA	NA
copper	6.5E-11	4.5E-09	1.0E-08	6.0E-09	NA	NA	NA	NA	NA	NA
lead	9.7E-10	1.7E-08	3.1E-09	1.0E-08	NA	NA	NA	NA	NA	NA
magnesium	5.3E-08	6.1E-07	5.4E-07	1.7E-06	3.6E-01	1.1E-01	5.5E-02	1.8E-01	NA	1.0E-03
manganese	1.7E-09	4.2E-08	9.8E-09	3.4E-08	4.8E-07	3.3E-07	3.9E-08	1.4E-07	NA	1.4E-09
mercury	7.1E-13	7.4E-12	6.0E-10	4.3E-12	1.2E-14	3.2E-15	1.5E-13	1.1E-15	NA	3.4E-17
molybdenum	1.4E-11	2.5E-10	6.4E-10	6.4E-10	NA	NA	NA	NA	NA	NA
nickel	4.0E-11	2.3E-09	2.2E-09	1.5E-09	NA	NA	NA	NA	NA	NA
selenium	1.4E-12	3.9E-11	1.1E-10	1.1E-10	NA	NA	NA	NA	NA	NA
silver	1.3E-11	5.4E-10	8.4E-10	2.2E-08	NA	NA	NA	NA	NA	NA
thallium	5.6E-13	3.8E-12	6.6E-11	1.3E-11	NA	NA	NA	NA	NA	NA
uranium-total	3.1E-09	2.0E-08	4.6E-10	5.6E-09	3.4E-03	5.2E-04	7.7E-06	9.6E-05	NA	9.8E-06
vanadium	4.1E-11	3.9E-10	3.0E-10	9.7E-12	NA	NA	NA	NA	NA	NA
zinc	2.9E-10	3.2E-07	7.7E-06	3.1E-06	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-14	1.1E-13	2.0E-14	4.4E-14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E-16	1.0E-15	2.3E-19	3.1E-19	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E-14	1.3E-13	2.6E-18	5.2E-18	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E-08	1.0E-07	7.6E-10	9.7E-10	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.2E-16	5.5E-15	7.7E-14	9.8E-14	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E-17	3.8E-16	3.8E-17	4.8E-17	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25a
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.1E−03	7.0E−02	1.1E−01	9.1E−01	1.1E+03	4.1E+03	3.4E+04	3.2E+02	NA	2.3E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.9E−04	2.1E−02	1.7E−04	3.6E−04	NA	NA	NA	NA	NA	NA	2.3E+02	7.3E+01	3.4E−01	7.3E−01	NA	NA
Pu_{238}	4.0E−03	1.0E−01	3.4E−06	1.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.7E−01	1.5E+01	1.2E−03	5.8E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.1E−03	3.4E−02	1.7E−03	7.2E−02	NA	NA	NA	NA	NA	NA	2.7E+03	8.7E+02	1.8E+01	7.8E+02	NA	NA
Ru_{106}	7.8E−02	2.0E+00	1.8E−01	1.3E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.5E+00	1.0E+02	8.4E+00	9.9E+02	2.9E+04	5.6E+03	6.5E+05	1.0E+03	NA	7.6E+00	2.4E+02	1.1E+02	5.0E+00	5.9E+02	NA	NA
Tc_{99}	1.4E−01	4.1E+00	2.9E+00	8.1E+01	2.5E+05	8.6E+05	2.4E+07	1.5E+03	NA	1.1E+01	2.2E+06	6.6E+05	3.0E+05	8.4E+06	NA	NA
Th_{230}	2.9E−01	7.8E+00	8.8E−03	1.7E−01	2.2E+01	1.1E+00	2.1E+01	2.3E+03	NA	1.7E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	3.8E+00	1.0E+02	1.1E−01	2.2E+00	6.5E+00	3.2E−01	6.2E+00	6.7E+02	NA	5.0E+00	NA	NA	NA	NA	NA	NA
U_{234}	4.2E+03	1.1E+05	1.1E+03	8.1E+04	2.8E+03	1.6E+02	1.1E+04	6.1E+03	NA	4.5E+01	9.1E+05	2.4E+05	1.6E+03	1.2E+05	NA	NA
$U_{235/236}$	NA	NA	NA	NA	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	4.1E+04	1.1E+04	7.2E+01	5.3E+03	NA	NA
U_{238+2d}	NA	NA	NA	NA	4.0E+03	2.4E+02	1.7E+04	8.9E+03	NA	6.6E+01	8.8E+05	2.3E+05	1.6E+03	1.1E+05	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.6E−10	5.8E−09	2.1E−09	1.5E−09	NA	NA	NA	NA	NA	NA	9.2E−07	3.5E−07	6.3E−08	4.5E−08	NA	1.8E−09
beryllium	1.8E−11	5.7E−10	1.2E−10	2.6E−12	2.6E−07	2.2E−07	4.7E−09	1.5E−06	1.5E−07	NA	7.8E−14	2.7E−14	2.0E−15	4.3E−17	NA	1.6E−16
cadmium	6.6E−11	3.3E−08	4.1E−09	1.8E−07	3.5E−05	4.6E−06	2.0E−04	2.1E−06	2.1E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.1E−10	1.5E−08	1.1E−08	7.0E−08	1.3E−05	1.8E−05	1.2E−04	2.6E−05	2.6E−06	NA	8.9E−06	4.6E−06	1.1E−06	7.0E−06	NA	3.6E−08
nickel	3.4E−10	8.1E−08	3.5E−08	1.4E−07	1.8E−04	7.9E−05	3.1E−04	2.6E−05	1.3E−07	NA	NA	NA	NA	NA	NA	NA
benzene	9.3E−17	4.4E−15	7.8E−19	5.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.3E−13	2.5E−12	2.1E−13	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.5E−14	4.8E−12	2.4E−14	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E−16	2.0E−14	2.0E−18	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.3E−14	2.2E−12	1.9E−17	2.3E−16	4.4E−06	5.3E−11	6.3E−10	6.6E−09	2.0E−08	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.4E−14	1.1E−12	3.3E−15	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.8E−15	5.9E−14	1.3E−18	1.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E−08	1.2E−06	4.0E−09	3.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.1E−08	4.3E−06	1.5E−09	1.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.8E−13	1.3E−11	7.5E−12	5.6E−11	1.5E−07	1.6E−07	1.2E−06	6.2E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.4E−13	1.4E−11	2.2E−11	1.7E−10	6.7E−08	2.5E−07	1.9E−06	5.2E−08	1.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.5E−13	1.4E−11	2.3E−11	1.7E−10	7.7E−08	3.0E−07	2.3E−06	6.0E−08	1.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.8E−13	1.3E−11	1.2E−10	8.8E−10	3.4E−08	1.3E−06	9.4E−06	7.0E−08	2.1E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	4.7E−13	1.3E−11	7.6E−12	5.7E−11	1.7E−07	1.8E−07	1.4E−06	7.2E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.7E−13	4.5E−12	3.9E−11	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.5E−13	9.2E−12	4.3E−11	3.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	9.9E−13	9.6E−11	2.5E−10	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.1E−14	4.6E−13	2.3E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.8E−15	1.3E−13	7.8E−13	5.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.0E−15	5.8E−14	3.8E−14	2.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.0E−16	7.9E−15	3.3E−15	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.5E−16	1.5E−14	6.7E−16	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.8E−17	9.3E−16	3.2E−13	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.2E−17	5.5E−16	2.8E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25b
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.0E−03	3.4E−02	5.3E−02	4.4E−01	1.2E+03	4.7E+03	3.8E+04	3.6E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.1E−04	9.6E−03	7.7E−05	1.6E−04	NA	NA	NA	NA	NA	NA	4.6E−02	1.5E−02	6.8E−05	1.5E−04	NA	NA
Pu_{238}	7.3E−03	1.9E−01	6.3E−06	2.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.5E−03	3.9E−02	3.2E−06	1.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.0E−01	1.5E+01	7.7E−01	3.3E+01	NA	NA	NA	NA	NA	NA	2.2E+03	7.1E+02	1.5E+01	6.4E+02	NA	NA
Ru_{106}	1.0E−03	2.6E−02	2.3E−03	1.7E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.3E−03	9.6E−02	7.7E−03	9.1E−01	1.2E+04	2.3E+03	2.7E+05	4.2E+02	NA	3.1E+00	2.4E−04	1.1E−04	5.0E−06	5.9E−04	NA	NA
Tc_{99}	1.5E−02	4.2E−01	3.0E−01	8.3E+00	9.3E+04	3.2E+05	8.8E+06	5.5E+02	NA	4.1E+00	9.4E+04	2.8E+04	1.3E+04	3.5E+05	NA	NA
Th_{230}	4.6E−01	1.2E+01	1.4E−02	2.7E−01	1.0E+01	5.0E−01	9.8E+00	1.1E+03	NA	7.9E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	3.2E−02	8.3E−01	9.4E−04	1.8E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	8.4E−01	2.2E+01	2.3E−01	1.6E+01	7.3E+02	4.3E+01	3.0E+03	1.6E+03	NA	1.2E+01	2.7E+01	7.1E+00	4.7E−02	3.4E+00	NA	NA
$U_{235/236}$	7.3E−02	1.9E+00	2.0E−02	1.4E+00	NA	NA	NA	NA	NA	NA	1.2E+00	3.2E−01	2.1E−03	1.6E−01	NA	NA
U_{238+2d}	9.7E−01	2.5E+01	2.6E−01	1.9E+01	8.1E+02	4.8E+01	3.4E+03	1.8E+03	NA	1.3E+01	2.6E+01	6.9E+00	4.6E−02	3.3E+00	NA	NA
Rn_{222+4d}	4.9E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.6E−11	2.3E−09	8.4E−10	5.9E−10	NA	NA	NA	NA	NA	NA	7.4E−07	2.8E−07	5.1E−08	3.6E−08	NA	1.5E−09
beryllium	6.6E−12	2.1E−10	4.6E−11	9.6E−13	1.4E−07	1.2E−07	2.5E−09	8.1E−07	8.1E−08	NA	NA	NA	NA	NA	NA	NA
cadmium	3.4E−11	1.7E−08	2.1E−09	9.1E−08	3.2E−05	4.2E−06	1.8E−04	1.9E−06	1.9E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.3E−10	5.9E−09	4.4E−09	2.8E−08	9.6E−06	1.3E−05	8.4E−05	1.9E−05	1.9E−06	NA	3.0E−10	1.5E−10	3.7E−11	2.4E−10	NA	1.2E−12
nickel	1.6E−10	3.8E−08	1.6E−08	6.3E−08	1.6E−04	7.2E−05	2.8E−04	2.4E−05	1.2E−07	NA	NA	NA	NA	NA	NA	NA
benzene	1.3E−16	6.2E−15	1.1E−18	8.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.0E−13	2.1E−12	1.7E−13	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.5E−14	2.2E−12	1.1E−14	7.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E−16	2.0E−14	2.0E−18	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E−14	1.7E−12	1.5E−17	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	6.0E−14	1.5E−12	4.5E−15	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.6E−15	8.7E−14	1.9E−18	1.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.0E−07	1.0E−05	3.3E−08	2.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.0E−07	3.7E−05	1.3E−08	9.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.5E−13	9.5E−12	5.4E−12	4.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.2E−13	1.1E−11	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.4E−13	1.2E−11	1.9E−11	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.3E−13	1.1E−11	1.1E−10	7.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.6E−13	1.0E−11	5.8E−12	4.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−13	3.6E−12	3.1E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.8E−13	7.3E−12	3.4E−11	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.9E−13	4.7E−11	1.2E−10	9.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.6E−14	6.7E−13	3.3E−11	2.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.6E−15	1.2E−13	7.3E−13	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	7.1E−16	2.0E−14	1.3E−14	9.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.6E−16	6.9E−15	2.9E−15	2.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E−16	7.5E−15	3.3E−16	2.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.5E−17	1.3E−15	4.6E−13	3.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.3E−17	8.0E−16	4.1E−13	3.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25c
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	7.8E−04	2.6E−02	4.1E−02	3.4E−01	8.6E+02	3.3E+03	2.7E+04	2.5E+02	NA	1.9E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.7E−04	8.3E−03	6.7E−05	1.4E−04	NA	NA	NA	NA	NA	NA	3.3E+02	1.0E+02	4.8E−01	1.0E+00	NA	NA
Pu_{238}	1.0E−02	2.7E−01	8.8E−06	4.1E−05	NA	NA	NA	NA	NA	NA	3.4E−07	8.9E−08	1.5E−12	7.1E−12	NA	NA
Pu_{239240}	1.3E−03	3.5E−02	2.9E−06	1.4E−05	NA	NA	NA	NA	NA	NA	4.8E−07	1.3E−07	2.2E−12	1.1E−11	NA	NA
Ra_{226+8d}	2.7E−01	8.3E+00	4.2E−01	1.8E+01	NA	NA	NA	NA	NA	NA	4.2E+02	1.3E+02	2.8E+00	1.2E+02	NA	NA
Ru_{105}	5.5E−04	1.4E−02	1.2E−03	9.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.3E−03	9.6E−02	7.7E−03	9.1E−01	2.3E+04	4.3E+03	5.1E+05	8.0E+02	NA	5.9E+00	1.2E+03	5.6E+02	2.6E+01	3.1E+03	NA	NA
Tc_{99}	1.8E−02	5.2E−01	3.7E−01	1.0E+01	NA	NA	NA	NA	NA	NA	3.1E+06	9.1E+05	4.1E+05	1.2E+07	NA	NA
Th_{230}	1.1E+00	2.9E+01	3.3E−02	6.5E−01	8.1E+00	4.0E−01	7.7E+00	8.4E+02	NA	6.2E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.6E−02	1.2E+00	1.4E−03	2.7E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.2E+00	3.1E+01	3.2E−01	2.3E+01	5.5E+02	3.3E+01	2.3E+03	1.2E+03	NA	9.0E+00	1.3E+06	3.3E+05	2.2E+03	1.6E+05	NA	NA
U_{235236}	9.2E−02	2.4E+00	2.5E−02	1.8E+00	NA	NA	NA	NA	NA	NA	5.7E+04	1.5E+04	1.0E+02	7.3E+03	NA	NA
U_{238+2d}	1.2E+00	3.2E+01	3.3E−01	2.3E+01	5.1E+02	3.0E+01	2.1E+03	1.1E+03	NA	8.4E+00	1.2E+06	3.3E+05	2.2E+03	1.6E+05	NA	NA
Rn_{222+4d}	1.3E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	5.0E−11	1.8E−09	6.4E−10	4.5E−10	NA	NA	NA	NA	NA	NA	2.0E−09	7.6E−10	1.4E−10	9.7E−11	NA	4.0E−12
beryllium	5.5E−12	1.8E−10	3.8E−11	8.0E−13	NA	NA	NA	NA	NA	NA	1.2E−11	4.2E−12	3.2E−13	6.9E−15	NA	2.5E−14
cadmium	1.9E−11	9.5E−09	1.2E−09	5.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.8E−11	4.1E−09	3.1E−09	2.0E−08	NA	NA	NA	NA	NA	NA	1.3E−05	6.5E−06	1.5E−06	1.0E−05	NA	5.0E−08
nickel	1.0E−10	2.5E−08	1.1E−08	4.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.9E−17	1.8E−15	3.2E−19	2.5E−18	NA	NA	NA	NA	NA	NA	6.4E−10	3.3E−10	3.3E−14	2.6E−13	4.8E−09	7.5E−11
bis(2−ethylhexyl)phthalate	5.3E−14	1.1E−12	8.7E−14	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.7E−14	1.5E−12	7.3E−15	5.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.2E−16	7.6E−15	7.6E−19	6.0E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1E−03	2.3E−03	1.5E−07	1.1E−06	3.8E−02	2.1E−04
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E−03	3.0E−04	3.7E−09	4.9E−08	1.0E−02	9.3E−05
methylene chloride	3.6E−14	8.7E−13	7.5E−18	8.9E−17	NA	NA	NA	NA	NA	NA	3.9E−13	9.8E−14	2.5E−19	3.4E−18	2.9E−12	1.0E−14
n−nitrosodiphenylamine	2.2E−14	5.6E−13	1.6E−15	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	7.7E−16	2.6E−14	5.6E−19	4.5E−18	NA	NA	NA	NA	NA	NA	2.3E−09	8.2E−10	9.7E−15	8.0E−14	NA	6.0E−11
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E−08	7.7E−07	2.5E−09	1.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.4E−08	2.7E−06	9.6E−10	7.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E−13	4.8E−12	2.7E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.0E−13	5.4E−12	8.4E−12	6.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E−13	5.4E−12	8.7E−12	6.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E−13	4.8E−12	4.5E−11	3.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.8E−13	4.9E−12	2.8E−12	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.0E−14	1.6E−12	1.4E−11	1.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.3E−13	3.3E−12	1.6E−11	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	3.5E−13	3.4E−11	8.9E−11	6.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	4.7E−15	2.0E−13	9.6E−12	7.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.1E−16	5.1E−14	3.2E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	7.1E−16	2.0E−14	1.3E−14	9.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E−16	3.3E−15	1.4E−15	1.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.0E−16	5.7E−15	2.5E−16	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.9E−17	4.5E−16	1.6E−13	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.9E−18	2.4E−16	1.2E−13	1.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25d
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	5.9E−04	2.0E−02	3.1E−02	2.6E−01	1.1E+03	4.1E+03	3.4E+04	3.2E+02	NA	2.3E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.1E−04	6.3E−03	5.1E−05	1.1E−04	NA	NA	NA	NA	NA	NA	1.5E+02	4.6E+01	2.1E−01	4.6E−01	NA	NA
Pu_{238}	5.7E−03	1.5E−01	4.8E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.0E−04	2.4E−02	2.0E−06	9.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.3E−01	7.0E+00	3.5E−01	1.5E+01	NA	NA	NA	NA	NA	NA	2.5E+03	7.8E+02	1.6E+01	7.0E+02	NA	NA
Ru_{106}	6.9E−04	1.8E−02	1.6E−03	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−03	5.6E−02	4.5E−03	5.3E−01	4.3E+04	8.3E+03	9.7E+05	1.5E+03	NA	1.1E+01	1.7E+03	7.6E+02	3.5E+01	4.2E+03	NA	NA
Tc_{99}	9.0E−03	2.6E−01	1.9E−01	5.1E+00	NA	NA	NA	NA	NA	NA	1.9E+05	5.7E+04	2.6E+04	7.2E+05	NA	NA
Th_{230}	3.6E−01	9.4E+00	1.1E−02	2.1E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.1E−02	5.5E−01	6.3E−04	1.2E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.1E−01	1.6E+01	1.7E−01	1.2E+01	5.0E+02	2.9E+01	2.1E+03	1.1E+03	NA	8.1E+00	8.0E+03	2.1E+03	1.4E+01	1.0E+03	NA	NA
$U_{235/236}$	5.3E−02	1.4E+00	1.4E−02	1.0E+00	NA	NA	NA	NA	NA	NA	3.6E+02	9.6E+01	6.4E−01	4.6E+01	NA	NA
U_{238+2d}	6.7E−01	1.8E+01	1.8E−01	1.3E+01	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	7.8E+03	2.1E+03	1.4E+01	9.9E+02	NA	NA
Rn_{222+4d}	2.8E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.6E−11	2.3E−09	8.4E−10	5.9E−10	NA	NA	NA	NA	NA	NA	2.1E−06	8.0E−07	1.4E−07	1.0E−07	NA	4.2E−09
beryllium	4.9E−12	1.6E−10	3.4E−11	7.2E−13	NA	NA	NA	NA	NA	NA	2.9E−08	1.0E−08	7.7E−10	1.6E−11	NA	5.9E−11
cadmium	2.4E−11	1.2E−08	1.5E−09	6.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.8E−11	4.1E−09	3.1E−09	2.0E−08	NA	NA	NA	NA	NA	NA	1.8E−06	9.6E−07	2.3E−07	1.5E−06	NA	7.4E−09
nickel	1.2E−10	2.9E−08	1.2E−08	4.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.8E−17	1.8E−15	3.2E−19	2.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	4.8E−14	9.6E−13	7.8E−14	1.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.0E−14	9.1E−13	4.5E−15	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E−16	6.5E−15	6.5E−19	5.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.6E−14	6.3E−13	5.4E−18	6.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	2.7E−14	7.0E−13	2.1E−15	1.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	7.7E−16	2.6E−14	5.6E−19	4.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E−07	3.6E−06	1.2E−08	8.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.1E−07	1.3E−05	4.6E−09	3.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.3E−13	3.6E−12	2.0E−12	1.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E−13	4.1E−12	6.4E−12	4.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.6E−13	4.2E−12	6.8E−12	5.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E−13	4.0E−12	3.6E−11	2.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.3E−13	3.7E−12	2.1E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.8E−14	1.3E−12	1.1E−11	8.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	9.9E−14	2.6E−12	1.2E−11	9.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	2.1E−13	2.1E−11	5.4E−11	4.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	4.5E−15	1.9E−13	9.4E−12	7.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	5.5E−16	3.9E−14	2.4E−13	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	3.5E−16	1.0E−14	6.5E−15	4.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.2E−16	3.2E−15	1.3E−15	9.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.3E−16	3.5E−15	1.5E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.2E−17	5.5E−16	1.9E−13	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.3E−18	2.3E−16	1.2E−13	9.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25e
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.0E−03	6.5E−02	1.0E−01	8.5E−01	1.2E+03	4.8E+03	3.9E+04	3.7E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.7E−04	1.7E−02	1.4E−04	3.0E−04	NA	NA	NA	NA	NA	NA	6.4E−08	2.0E−08	9.4E−11	2.0E−10	NA	NA
Pu_{238}	1.4E−02	3.5E−01	1.2E−05	5.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.5E−03	6.6E−02	5.5E−06	2.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.7E+00	5.2E+01	2.6E+00	1.1E+02	NA	NA	NA	NA	NA	NA	1.9E−12	5.9E−13	1.2E−14	5.3E−13	NA	NA
Ru_{106}	1.1E−03	2.9E−02	2.6E−03	1.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.5E−03	2.3E−01	1.8E−02	2.1E+00	6.2E+04	1.2E+04	1.4E+06	2.2E+03	NA	1.6E+01	2.0E−07	9.0E−08	4.2E−09	4.9E−07	NA	NA
Tc_{99}	4.0E−02	1.1E+00	8.2E−01	2.3E+01	1.3E+05	4.4E+05	1.2E+07	7.6E+02	NA	5.6E+00	1.2E+01	3.7E+00	1.7E+00	4.7E+01	NA	NA
Th_{230}	2.1E+00	5.5E+01	6.2E−02	1.2E+00	7.2E+00	3.5E−01	6.9E+00	7.4E+02	NA	5.5E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	8.4E−02	2.2E+00	2.5E−03	4.9E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.9E+00	5.1E+01	5.3E−01	3.7E+01	1.3E+03	7.6E+01	5.3E+03	2.8E+03	NA	2.1E+01	3.5E+01	9.3E+00	6.2E−02	4.5E+00	NA	NA
$U_{235/236}$	1.5E−01	4.0E+00	4.2E−02	2.9E+00	1.3E+02	7.9E+00	5.5E+02	2.9E+02	NA	2.2E+00	1.6E+00	4.2E−01	2.8E−03	2.0E−01	NA	NA
U_{238+2d}	2.0E+00	5.4E+01	5.6E−01	3.9E+01	1.3E+03	7.6E+01	5.4E+03	2.8E+03	NA	2.1E+01	3.4E+01	9.1E+00	6.0E−02	4.4E+00	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.9E−11	3.5E−09	1.3E−09	8.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.3E−11	4.1E−10	8.7E−11	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.8E−11	2.4E−08	3.0E−09	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.2E−10	1.0E−08	7.7E−09	4.9E−08	NA	NA	NA	NA	NA	NA	1.3E−17	6.7E−18	1.6E−18	1.0E−17	NA	5.2E−20
nickel	2.6E−10	6.1E−08	2.6E−08	1.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.4E−16	1.1E−14	2.0E−18	1.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.1E−13	4.2E−12	3.4E−13	4.5E−12	2.4E−07	4.6E−08	6.0E−07	8.2E−08	3.3E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	7.7E−14	6.7E−12	3.3E−14	2.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E−15	4.1E−14	4.1E−18	3.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E−13	5.9E−12	5.1E−17	6.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	6.0E−14	1.5E−12	4.5E−15	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	4.7E−15	1.6E−13	3.4E−18	2.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.2E−08	2.9E−06	9.3E−09	6.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.7E−07	1.0E−05	3.7E−09	2.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	8.2E−13	2.2E−11	1.3E−11	9.5E−11	2.8E−07	3.0E−07	2.3E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.9E−13	2.6E−11	4.1E−11	3.0E−10	1.6E−07	5.9E−07	4.4E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.8E−13	2.3E−11	3.7E−11	2.8E−10	1.5E−07	6.1E−07	4.5E−06	1.2E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.9E−13	2.6E−11	2.4E−10	1.8E−09	8.0E−08	3.0E−06	2.2E−05	1.6E−07	4.9E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	7.1E−13	2.0E−11	1.2E−11	8.6E−11	4.1E−07	4.4E−07	3.3E−06	1.8E−07	5.3E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.3E−13	8.6E−12	7.5E−11	5.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.5E−13	1.4E−11	6.7E−11	5.0E−10	5.1E−08	8.1E−07	6.0E−06	7.3E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.4E−12	1.4E−10	3.6E−10	2.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	2.9E−14	1.2E−12	6.0E−11	4.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.9E−15	2.1E−13	1.3E−12	9.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.3E−15	3.6E−14	2.3E−14	1.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.7E−16	7.1E−15	2.9E−15	2.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.8E−16	1.1E−14	4.6E−16	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.6E−17	1.6E−15	5.5E−13	4.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.0E−17	1.5E−15	7.6E−13	6.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25f
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	9.0E−04	3.0E−02	4.8E−02	3.9E−01	1.2E+03	4.8E+03	3.9E+04	3.7E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.9E−04	9.0E−03	7.2E−05	1.5E−04	NA	NA	NA	NA	NA	NA	1.6E+02	5.2E+01	2.4E−01	5.2E−01	NA	NA
Pu_{238}	1.2E−02	3.1E−01	1.0E−05	4.8E−05	NA	NA	NA	NA	NA	NA	3.3E−15	8.5E−16	1.4E−20	6.8E−20	NA	NA
Pu_{239240}	1.6E−03	4.2E−02	3.5E−06	1.6E−05	NA	NA	NA	NA	NA	NA	6.6E−13	1.7E−13	3.1E−18	1.5E−17	NA	NA
Ra_{226+8d}	3.1E−01	9.6E+00	4.8E−01	2.0E+01	NA	NA	NA	NA	NA	NA	1.5E+01	4.7E+00	9.9E−02	4.2E+00	NA	NA
Ru_{105}	5.7E−04	1.5E−02	1.3E−03	9.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.7E−03	1.1E−01	9.1E−03	1.1E+00	6.2E+04	1.2E+04	1.4E+06	2.2E+03	NA	1.6E+01	2.9E+01	1.3E+01	6.1E−01	7.2E+01	NA	NA
Tc_{99}	3.2E−02	9.1E−01	6.5E−01	1.8E+01	1.3E+05	4.4E+05	1.2E+07	7.6E+02	NA	5.6E+00	1.4E+06	4.3E+05	1.9E+05	5.4E+06	NA	NA
Th_{230}	1.2E+00	3.0E+01	3.4E−02	6.7E−01	7.2E+00	3.5E−01	6.9E+00	7.4E+02	NA	5.5E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.3E−02	1.4E+00	1.6E−03	3.1E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.5E+00	3.9E+01	4.1E−01	2.9E+01	1.3E+03	7.6E+01	5.3E+03	2.8E+03	NA	2.1E+01	6.3E+05	1.7E+05	1.1E+03	8.0E+04	NA	NA
U_{235236}	1.1E−01	3.0E+00	3.1E−02	2.2E+00	1.3E+02	7.9E+00	5.5E+02	2.9E+02	NA	2.2E+00	2.9E+04	7.5E+03	5.0E+01	3.6E+03	NA	NA
U_{238+2d}	1.5E+00	3.9E+01	4.1E−01	2.9E+01	1.3E+03	7.6E+01	5.4E+03	2.8E+03	NA	2.1E+01	6.1E+05	1.6E+05	1.1E+03	7.8E+04	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.7E−11	2.7E−09	9.8E−10	6.9E−10	NA	NA	NA	NA	NA	NA	5.7E−19	2.2E−19	3.9E−20	2.8E−20	NA	1.1E−21
beryllium	8.2E−12	2.7E−10	5.7E−11	1.2E−12	NA	NA	NA	NA	NA	NA	1.0E−22	3.5E−23	2.7E−24	5.8E−26	NA	2.1E−25
cadmium	3.0E−11	1.5E−08	1.9E−09	8.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.4E−10	6.6E−09	5.0E−09	3.2E−08	NA	NA	NA	NA	NA	NA	6.2E−06	3.2E−06	7.6E−07	4.9E−06	NA	2.5E−08
nickel	1.6E−10	3.8E−08	1.6E−08	6.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	5.1E−17	2.4E−15	4.3E−19	3.2E−18	NA	NA	NA	NA	NA	NA	2.6E−11	1.3E−11	1.3E−15	1.0E−14	1.9E−10	3.0E−12
bis(2−ethylhexyl)phthalate	6.6E−14	1.3E−12	1.1E−13	1.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.6E−14	2.3E−12	1.1E−14	8.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.0E−16	1.0E−14	1.0E−18	7.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E−03	5.8E−04	3.7E−08	2.8E−07	9.6E−03	5.3E−05
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5E−04	8.0E−05	9.7E−10	1.3E−08	2.6E−03	2.5E−05
methylene chloride	5.2E−14	1.2E−12	1.1E−17	1.3E−16	NA	NA	NA	NA	NA	NA	6.9E−19	1.7E−19	4.5E−25	5.9E−24	5.2E−18	1.8E−20
n−nitrosodiphenylamine	2.4E−14	6.2E−13	1.8E−15	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.9E−16	3.3E−14	7.2E−19	5.7E−18	NA	NA	NA	NA	NA	NA	6.0E−11	2.1E−11	2.5E−16	2.1E−15	NA	1.6E−12
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.3E−08	8.0E−07	2.6E−09	1.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E−08	2.8E−06	1.0E−09	7.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.4E−13	6.4E−12	3.7E−12	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.7E−13	7.1E−12	1.1E−11	8.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.7E−13	7.1E−12	1.1E−11	8.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E−13	6.6E−12	6.1E−11	4.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.2E−13	6.2E−12	3.6E−12	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.2E−14	2.2E−12	1.9E−11	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.7E−13	4.5E−12	2.1E−11	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.3E−13	4.2E−11	1.1E−10	8.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	6.0E−15	2.5E−13	1.2E−11	9.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	8.8E−16	6.3E−14	3.9E−13	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	8.2E−16	2.3E−14	1.5E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.4E−16	3.8E−15	1.6E−15	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.3E−16	6.4E−15	2.8E−16	2.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.1E−17	5.1E−16	1.7E−13	1.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.3E−17	3.1E−16	1.6E−13	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-25g
INTAKES FOR CARCINOGENS FOR OFF-PROPERTY CHILD AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.5E-03	5.1E-02	8.1E-02	6.7E-01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.8E-04	1.2E-02	9.3E-05	2.0E-04	9.7E-04	3.1E-04	1.4E-06	3.1E-06	NA	NA
Pu_{238}	1.1E-02	2.8E-01	9.3E-06	4.4E-05	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.0E-03	5.1E-02	4.2E-06	2.0E-05	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	9.9E-01	3.0E+01	1.5E+00	6.4E+01	1.8E-12	5.8E-13	1.2E-14	5.3E-13	NA	NA
Ru_{106}	7.1E-04	1.8E-02	1.6E-03	1.2E-05	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.5E-03	2.3E-01	1.8E-02	2.1E+00	6.8E-03	3.1E-03	1.4E-04	1.7E-02	NA	NA
Tc_{99}	7.1E-02	2.1E+00	1.5E+00	4.0E+01	3.9E+03	1.2E+03	5.2E+02	1.5E+04	NA	NA
Th_{230}	3.1E+00	8.3E+01	9.4E-02	1.8E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	9.5E-02	2.5E+00	2.8E-03	5.5E-02	NA	NA	NA	NA	NA	NA
U_{234}	2.0E+00	5.3E+01	5.5E-01	3.9E+01	9.2E+02	2.4E+02	1.6E+00	1.2E+02	NA	NA
$U_{235/236}$	1.4E-01	3.8E+00	3.9E-02	2.7E+00	4.2E+01	1.1E+01	7.3E-02	5.3E+00	NA	NA
U_{238+2d}	1.9E+00	5.0E+01	5.1E-01	3.6E+01	9.0E+02	2.4E+02	1.6E+00	1.1E+02	NA	NA
Rn_{222+4d}	7.1E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	7.7E-11	2.7E-09	9.8E-10	6.9E-10	5.3E-27	2.0E-27	3.6E-28	2.6E-28	NA	1.1E-29
beryllium	8.8E-12	2.9E-10	6.1E-11	1.3E-12	NA	NA	NA	NA	NA	NA
cadmium	3.5E-11	1.7E-08	2.2E-09	9.3E-08	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-10	7.4E-09	5.6E-09	3.6E-08	3.1E-12	1.6E-12	3.8E-13	2.5E-12	NA	1.2E-14
nickel	1.8E-10	4.3E-08	1.8E-08	7.2E-08	NA	NA	NA	NA	NA	NA
benzene	1.1E-16	5.1E-15	9.1E-19	6.9E-18	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.1E-13	2.2E-12	1.8E-13	2.3E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.4E-14	4.8E-12	2.3E-14	1.7E-13	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E-16	2.0E-14	2.0E-18	1.6E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.4E-04	6.3E-05	4.0E-09	3.1E-08	1.0E-03	5.8E-06
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-13	2.6E-12	2.3E-17	2.7E-16	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	3.6E-14	9.1E-13	2.7E-15	2.2E-14	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	2.1E-15	7.2E-14	1.6E-18	1.2E-17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.5E-08	1.6E-06	5.1E-09	3.8E-08	NA	NA	NA	NA	NA	NA
trichloroethene	9.3E-08	5.7E-06	2.0E-09	1.5E-08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E-13	1.2E-11	6.6E-12	4.9E-11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.0E-13	1.3E-11	2.1E-11	1.5E-10	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.9E-13	1.3E-11	2.1E-11	1.6E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.9E-13	1.3E-11	1.2E-10	8.9E-10	NA	NA	NA	NA	NA	NA
chrysene	3.9E-13	1.1E-11	6.3E-12	4.7E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.6E-13	4.3E-12	3.7E-11	2.8E-10	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.1E-13	8.2E-12	3.8E-11	2.9E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	7.1E-13	6.9E-11	1.8E-10	1.3E-09	NA	NA	NA	NA	NA	NA
aroclor-1260	1.3E-14	5.5E-13	2.7E-11	2.0E-10	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-15	1.0E-13	6.3E-13	4.7E-12	NA	NA	NA	NA	NA	NA
4,4-dde	8.2E-16	2.3E-14	1.5E-14	1.1E-13	NA	NA	NA	NA	NA	NA
chlordane	1.7E-16	4.5E-15	1.9E-15	1.4E-14	NA	NA	NA	NA	NA	NA
dieldrin	2.5E-16	6.9E-15	3.0E-16	2.3E-15	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.4E-17	8.3E-16	2.8E-13	2.4E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.8E-17	6.8E-16	3.5E-13	2.9E-12	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–25b
INTAKES FOR CARCINOGENS FOR OFF–PROPERTY CHILD
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.5E−03	5.0E−02	8.0E−02	6.6E−01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.8E−04	1.5E−02	1.2E−04	2.5E−04	3.0E+01	9.4E+00	4.4E−02	9.4E−02	NA	NA
Pu_{238}	1.4E−02	3.7E−01	1.2E−05	5.7E−05	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.3E−03	6.0E−02	5.0E−06	2.4E−05	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.7E−01	1.7E+01	8.7E−01	3.7E+01	1.1E+02	3.5E+01	7.3E−01	3.1E+01	NA	NA
Ru_{106}	8.2E−04	2.1E−02	1.9E−03	1.4E−05	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.7E−03	2.3E−01	1.9E−02	2.2E+00	1.1E+00	5.1E−01	2.4E−02	2.8E+00	NA	NA
Tc_{99}	9.0E−02	2.6E+00	1.9E+00	5.1E+01	1.5E+05	4.5E+04	2.0E+04	5.7E+05	NA	NA
Th_{230}	2.5E+00	6.7E+01	7.5E−02	1.5E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.0E−01	2.7E+00	3.0E−03	5.9E−02	NA	NA	NA	NA	NA	NA
U_{234}	2.5E+00	6.6E+01	6.9E−01	4.8E+01	1.5E+05	3.9E+04	2.6E+02	1.9E+04	NA	NA
$U_{235/236}$	1.8E−01	4.8E+00	4.9E−02	3.5E+00	6.7E+03	1.8E+03	1.2E+01	8.5E+02	NA	NA
U_{238+2d}	2.3E+00	6.1E+01	6.3E−01	4.4E+01	1.4E+05	3.8E+04	2.5E+02	1.8E+04	NA	NA
Rn_{222+4d}	4.8E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	8.8E−11	3.1E−09	1.1E−09	7.9E−10	2.8E−20	1.1E−20	1.9E−21	1.3E−21	NA	5.5E−23
beryllium	9.9E−12	3.2E−10	6.8E−11	1.4E−12	NA	NA	NA	NA	NA	NA
cadmium	3.8E−11	1.9E−08	2.4E−09	1.0E−07	NA	NA	NA	NA	NA	NA
chromium vi	1.8E−10	8.2E−09	6.1E−09	3.9E−08	7.5E−07	3.9E−07	9.2E−08	5.9E−07	NA	3.0E−09
nickel	2.0E−10	4.7E−08	2.0E−08	7.9E−08	NA	NA	NA	NA	NA	NA
benzene	7.7E−17	3.6E−15	6.4E−19	4.8E−18	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	8.8E−14	1.8E−12	1.4E−13	1.9E−12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.3E−14	4.7E−12	2.3E−14	1.7E−13	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.7E−16	1.6E−14	1.6E−18	1.3E−17	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.2E−14	2.0E−12	1.7E−17	2.0E−16	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	3.7E−14	9.6E−13	2.8E−15	2.3E−14	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.5E−15	5.2E−14	1.1E−18	8.9E−18	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.3E−08	1.2E−06	3.8E−09	2.8E−08	NA	NA	NA	NA	NA	NA
trichloroethene	6.6E−08	4.0E−06	1.4E−09	1.1E−08	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.7E−13	1.0E−11	5.8E−12	4.3E−11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.2E−13	1.1E−11	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.4E−13	1.2E−11	1.9E−11	1.4E−10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.9E−13	1.1E−11	9.7E−11	7.2E−10	NA	NA	NA	NA	NA	NA
chrysene	3.5E−13	9.7E−12	5.7E−12	4.2E−11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−13	3.6E−12	3.1E−11	2.3E−10	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.7E−13	7.2E−12	3.4E−11	2.5E−10	NA	NA	NA	NA	NA	NA
aroclor−1254	5.5E−13	5.3E−11	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA
aroclor−1260	9.3E−15	3.9E−13	1.9E−11	1.4E−10	NA	NA	NA	NA	NA	NA
4,4−ddt	1.2E−15	8.6E−14	5.4E−13	4.0E−12	NA	NA	NA	NA	NA	NA
4,4−dde	9.9E−16	2.8E−14	1.8E−14	1.4E−13	NA	NA	NA	NA	NA	NA
chlordane	2.0E−16	5.2E−15	2.1E−15	1.6E−14	NA	NA	NA	NA	NA	NA
dieldrin	2.8E−16	8.0E−15	3.5E−16	2.6E−15	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.2E−17	7.9E−16	2.7E−13	2.3E−12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.0E−17	4.8E−16	2.5E−13	2.1E−12	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-25i
INTAKES FOR CARCINOGENS FOR OFF-PROPERTY CHILD NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.9E-05	9.8E-04	1.6E-03	1.3E-02	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.8E-06	2.7E-04	2.2E-06	4.6E-06	1.4E+01	4.5E+00	2.1E-02	4.5E-02	NA	NA
Pu_{238}	2.5E-04	6.5E-03	2.1E-07	1.0E-06	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.0E-05	1.0E-03	8.7E-08	4.1E-07	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.5E-02	4.6E-01	2.3E-02	9.8E-01	5.6E-06	1.8E-06	3.8E-08	1.6E-06	NA	NA
Ru_{106}	1.7E-05	4.2E-04	3.8E-05	2.7E-07	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	9.2E-05	3.8E-03	3.1E-04	3.6E-02	2.4E-02	1.1E-02	4.9E-04	5.8E-02	NA	NA
Tc_{99}	1.1E-03	3.2E-02	2.3E-02	6.3E-01	1.8E+05	5.5E+04	2.5E+04	6.9E+05	NA	NA
Th_{230}	4.4E-02	1.2E+00	1.3E-03	2.6E-02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.6E-03	4.3E-02	4.8E-05	9.5E-04	NA	NA	NA	NA	NA	NA
U_{234}	3.8E-02	1.0E+00	1.0E-02	7.2E-01	8.9E+04	2.4E+04	1.6E+02	1.1E+04	NA	NA
$U_{235/236}$	2.7E-03	7.2E-02	7.4E-04	5.2E-02	4.0E+03	1.1E+03	7.1E+00	5.2E+02	NA	NA
U_{238+2d}	3.8E-02	1.0E+00	1.0E-02	7.2E-01	8.7E+04	2.3E+04	1.5E+02	1.1E+04	NA	NA
Rn_{222+4d}	3.0E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.5E-12	5.5E-11	2.0E-11	1.4E-11	NA	NA	NA	NA	NA	NA
beryllium	1.6E-13	5.4E-12	1.1E-12	2.4E-14	NA	NA	NA	NA	NA	NA
cadmium	6.6E-13	3.3E-10	4.1E-11	1.8E-09	NA	NA	NA	NA	NA	NA
chromium vi	3.0E-12	1.4E-10	1.0E-10	6.6E-10	7.3E-07	3.8E-07	9.0E-08	5.8E-07	NA	2.9E-09
nickel	3.4E-12	8.1E-10	3.5E-10	1.4E-09	NA	NA	NA	NA	NA	NA
benzene	2.0E-18	9.5E-17	1.7E-20	1.3E-19	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.9E-15	3.8E-14	3.0E-15	4.0E-14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	8.8E-16	7.7E-14	3.8E-16	2.8E-15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.0E-17	3.5E-16	3.5E-20	2.8E-19	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.9E-15	4.6E-14	4.0E-19	4.7E-18	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	7.1E-16	1.8E-14	5.4E-17	4.4E-16	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	4.0E-17	1.3E-15	2.9E-20	2.3E-19	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E-09	3.6E-08	1.2E-10	8.8E-10	NA	NA	NA	NA	NA	NA
trichloroethene	2.1E-09	1.3E-07	4.5E-11	3.4E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.7E-15	2.1E-13	1.2E-13	8.9E-13	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	8.8E-15	2.3E-13	3.6E-13	2.7E-12	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.8E-15	2.3E-13	3.7E-13	2.8E-12	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	8.8E-15	2.3E-13	2.2E-12	1.6E-11	NA	NA	NA	NA	NA	NA
chrysene	7.1E-15	2.0E-13	1.2E-13	8.6E-13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.9E-15	7.6E-14	6.6E-13	4.9E-12	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.4E-15	1.4E-13	6.7E-13	5.0E-12	NA	NA	NA	NA	NA	NA
aroclor-1254	1.2E-14	1.2E-12	3.0E-12	2.3E-11	NA	NA	NA	NA	NA	NA
aroclor-1260	2.5E-16	1.0E-14	5.1E-13	3.8E-12	NA	NA	NA	NA	NA	NA
4,4-ddt	2.7E-17	1.9E-15	1.2E-14	8.9E-14	NA	NA	NA	NA	NA	NA
4,4-dde	1.6E-17	4.5E-16	2.9E-16	2.2E-15	NA	NA	NA	NA	NA	NA
chlordane	3.5E-18	9.1E-17	3.8E-17	2.8E-16	NA	NA	NA	NA	NA	NA
dieldrin	4.8E-18	1.3E-16	5.8E-18	4.4E-17	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.6E-19	1.6E-17	5.5E-15	4.6E-14	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.1E-19	1.2E-17	6.4E-15	5.4E-14	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–26a
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.5E−10	8.4E−09	2.7E−14	2.0E−13	1.5E−02	5.3E−08	3.9E−07	5.4E−06	5.4E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E−06	4.8E−05	NA	NA	NA	NA	NA	2.4E−01	2.4E−02	NA	NA	NA	NA	NA	NA	NA
antimony	2.9E−09	2.5E−07	8.0E−08	1.9E−07	1.3E−04	5.6E−05	1.3E−04	3.7E−05	3.7E−06	NA	1.0E−04	9.9E−05	1.6E−05	3.8E−05	NA	2.0E−07
arsenic	1.9E−09	6.8E−08	2.4E−08	1.7E−08	NA	NA	NA	NA	NA	NA	1.1E−05	4.1E−06	7.3E−07	5.2E−07	NA	2.1E−08
barium	2.5E−08	2.3E−06	1.7E−07	9.2E−06	5.2E−03	5.4E−04	2.9E−02	3.1E−03	3.1E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	2.0E−10	6.7E−09	1.4E−09	3.0E−11	3.0E−06	2.6E−06	5.5E−08	1.8E−05	1.8E−06	NA	9.1E−13	3.1E−13	2.4E−14	5.1E−16	NA	1.8E−15
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.7E−10	3.8E−07	4.8E−08	2.0E−06	4.1E−04	5.4E−05	2.3E−03	2.4E−05	2.4E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.6E−09	1.7E−07	1.3E−07	8.2E−07	1.5E−04	2.1E−04	1.3E−03	3.0E−04	3.0E−05	NA	1.0E−04	5.4E−05	1.3E−05	8.2E−05	NA	4.1E−07
cobalt	1.9E−09	9.0E−08	2.8E−07	6.5E−07	2.2E−04	1.2E−03	2.8E−03	2.7E−04	2.7E−05	NA	NA	NA	NA	NA	NA	NA
copper	9.6E−09	2.7E−06	2.7E−06	9.6E−06	4.3E−03	4.5E−03	1.6E−02	1.5E−04	1.5E−06	NA	NA	NA	NA	NA	NA	NA
lead	2.4E−07	1.7E−05	1.4E−06	2.7E−05	5.9E−04	6.9E−05	1.4E−03	5.8E−04	5.8E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	6.1E−06	2.9E−04	1.1E−04	2.1E−03	7.4E+00	4.3E+00	8.1E+01	1.2E−01	1.2E−02	NA	3.4E+01	1.8E+01	4.0E+00	7.6E+01	NA	6.8E−02
manganese	1.9E−07	1.8E−05	1.9E−06	3.9E−05	3.2E−01	4.2E−02	8.7E−01	5.6E−02	5.6E−03	NA	2.8E−02	3.3E−02	1.7E−03	3.6E−02	NA	5.7E−05
mercury	7.0E−11	3.0E−09	1.1E−07	4.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.6E−09	1.1E−07	1.3E−07	7.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	4.0E−09	9.4E−07	4.1E−07	1.6E−06	2.1E−03	9.2E−04	3.6E−03	3.0E−04	1.5E−06	NA	NA	NA	NA	NA	NA	NA
selenium	1.3E−10	1.6E−08	1.9E−08	1.2E−07	2.0E−05	2.7E−05	1.7E−04	7.0E−06	7.0E−07	NA	NA	NA	NA	NA	NA	NA
silver	1.5E−09	2.6E−07	1.8E−07	2.8E−05	2.6E−04	2.1E−04	3.2E−02	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.4E−11	1.5E−09	1.1E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.3E−07	8.6E−06	8.9E−08	6.2E−06	3.9E−04	2.3E−05	1.6E−03	8.7E−04	8.7E−05	NA	8.1E−02	2.1E−02	1.4E−04	1.0E−02	NA	1.6E−04
vanadium	4.7E−09	1.8E−07	6.2E−08	1.2E−08	1.7E−04	1.4E−04	2.6E−05	5.0E−04	5.0E−06	NA	NA	NA	NA	NA	NA	NA
zinc	2.2E−08	1.0E−04	1.1E−03	2.5E−03	5.6E−01	6.0E+00	1.4E+01	5.5E−03	5.5E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.5E−12	3.0E−11	2.4E−12	3.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.0E−15	2.4E−13	2.4E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	9.2E−06	1.5E−06	1.2E−05	1.5E−06	4.6E−06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−12	2.6E−11	2.3E−16	2.7E−15	5.1E−05	6.2E−10	7.3E−09	7.7E−08	2.3E−07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	6.3E−06	1.9E−06	1.4E−05	1.4E−06	4.2E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	7.5E−06	4.8E−07	3.6E−06	7.5E−07	2.3E−06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.1E−07	1.4E−05	4.6E−08	3.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.0E−14	1.5E−12	9.1E−12	6.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.4E−15	1.8E−13	7.8E−15	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–26b
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.3E−11	1.9E−09	6.0E−15	4.4E−14	1.5E−02	5.3E−08	3.9E−07	5.4E−06	5.4E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	7.0E−07	1.8E−05	NA	NA	NA	NA	NA	1.5E−01	1.5E−02	NA	NA	NA	NA	NA	NA	NA
antimony	1.5E−09	1.3E−07	4.2E−08	9.8E−08	NA	NA	NA	NA	NA	NA	4.9E−09	4.9E−09	8.1E−10	1.9E−09	NA	9.9E−12
arsenic	7.7E−10	2.7E−08	9.8E−09	6.9E−09	NA	NA	NA	NA	NA	NA	8.7E−06	3.3E−06	5.9E−07	4.2E−07	NA	1.7E−08
barium	9.6E−09	8.7E−07	6.5E−08	3.6E−06	2.8E−03	2.9E−04	1.6E−02	1.7E−03	1.7E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	7.7E−11	2.5E−09	5.3E−10	1.1E−11	1.6E−06	1.4E−06	2.9E−08	9.5E−06	9.5E−07	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.0E−10	2.0E−07	2.5E−08	1.1E−06	3.7E−04	4.9E−05	2.1E−03	2.2E−05	2.2E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.5E−09	6.8E−08	5.2E−08	3.3E−07	1.1E−04	1.5E−04	9.8E−04	2.2E−04	2.2E−05	NA	3.5E−09	1.8E−09	4.3E−10	2.8E−09	NA	1.4E−11
cobalt	8.3E−10	4.1E−08	1.2E−07	2.9E−07	1.7E−04	9.2E−04	2.2E−03	2.1E−04	2.1E−05	NA	NA	NA	NA	NA	NA	NA
copper	2.2E−09	6.4E−07	6.3E−07	2.2E−06	7.5E−03	7.9E−03	2.8E−02	2.7E−04	2.7E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.3E−08	9.2E−07	7.4E−08	1.4E−06	3.7E−04	4.3E−05	8.4E−04	3.6E−04	3.6E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	2.2E−06	1.0E−04	4.0E−05	7.6E−04	1.3E+01	7.6E+00	1.4E+02	2.1E−01	2.1E−02	NA	1.0E+01	5.5E+00	1.2E+00	2.4E+01	NA	2.1E−02
manganese	7.0E−08	7.0E−06	7.2E−07	1.5E−05	NA	NA	NA	NA	NA	NA	5.2E−05	6.1E−05	3.2E−06	6.6E−05	NA	1.0E−07
mercury	2.0E−11	8.7E−10	3.1E−08	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	6.0E−10	4.3E−08	4.9E−08	2.9E−07	1.0E−03	1.7E−03	9.9E−03	1.5E−04	1.5E−05	NA	NA	NA	NA	NA	NA	NA
nickel	1.9E−09	4.4E−07	1.9E−07	7.4E−07	1.9E−03	8.4E−04	3.3E−03	2.8E−04	1.4E−06	NA	NA	NA	NA	NA	NA	NA
selenium	7.0E−11	8.4E−09	1.0E−08	6.3E−08	1.2E−05	1.6E−05	9.7E−05	4.1E−06	4.1E−07	NA	NA	NA	NA	NA	NA	NA
silver	6.4E−10	1.1E−07	7.6E−08	1.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.1E−11	8.7E−10	6.7E−09	7.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	8.3E−08	2.2E−06	2.3E−08	1.6E−06	7.5E−05	4.4E−06	3.1E−04	1.6E−04	1.6E−05	NA	2.4E−06	6.3E−07	4.2E−09	3.0E−07	NA	4.8E−09
vanadium	1.9E−09	7.1E−08	2.5E−08	4.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.0E−08	8.9E−05	9.5E−04	2.2E−03	1.0E−01	1.1E+00	2.6E+00	1.0E−03	1.0E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−12	2.5E−11	2.0E−12	2.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.0E−15	2.4E−13	2.4E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E−13	2.0E−11	1.7E−16	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E−06	1.2E−04	3.9E−07	2.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.9E−14	1.4E−12	8.5E−12	6.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.1E−15	8.7E−14	3.8E−15	2.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–26c
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.3E−11	1.9E−09	6.1E−15	4.5E−14	NA	NA	NA	NA	NA	NA	6.2E−02	4.1E−02	7.4E−08	5.5E−07	NA	5.7E−04
aluminum	5.5E−07	1.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	8.9E−10	7.5E−08	2.4E−08	5.7E−08	NA	NA	NA	NA	NA	NA	4.1E−06	4.1E−06	6.7E−07	1.6E−06	NA	8.2E−09
arsenic	5.9E−10	2.1E−08	7.5E−09	5.3E−09	NA	NA	NA	NA	NA	NA	2.3E−08	8.8E−09	1.6E−09	1.1E−09	NA	4.7E−11
barium	7.7E−09	6.9E−07	5.2E−08	2.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	6.4E−11	2.1E−09	4.4E−10	9.3E−12	NA	NA	NA	NA	NA	NA	1.4E−10	4.9E−11	3.8E−12	8.1E−14	NA	2.9E−13
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.2E−10	1.1E−07	1.4E−08	6.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−09	4.8E−08	3.6E−08	2.3E−07	NA	NA	NA	NA	NA	NA	1.5E−04	7.6E−05	1.8E−05	1.2E−04	NA	5.9E−07
cobalt	5.7E−10	2.8E−08	8.5E−08	2.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.0E−09	5.8E−07	5.8E−07	2.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	3.5E−08	2.5E−06	2.0E−07	3.9E−06	NA	NA	NA	NA	NA	NA	5.6E−07	4.6E−07	1.7E−08	3.3E−07	NA	4.4E−12
magnesium	1.7E−06	7.8E−05	3.1E−05	5.8E−04	NA	NA	NA	NA	NA	NA	1.5E+01	7.6E+00	1.7E+00	3.3E+01	NA	2.9E−02
manganese	5.6E−08	5.6E−06	5.8E−07	1.2E−05	NA	NA	NA	NA	NA	NA	2.8E−03	3.3E−03	1.8E−04	3.6E−03	NA	5.7E−06
mercury	2.1E−11	9.0E−10	3.2E−08	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.0E−10	2.9E−08	3.3E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.2E−09	2.9E−07	1.2E−07	4.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	5.1E−11	6.1E−09	7.3E−09	4.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	4.1E−10	7.0E−08	4.9E−08	7.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.5E−11	4.3E−10	3.3E−09	3.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.0E−07	2.7E−06	2.8E−08	2.0E−06	7.0E−05	4.1E−06	2.9E−04	1.5E−04	1.5E−05	NA	1.1E−01	3.0E−02	2.0E−04	1.4E−02	NA	2.3E−04
vanadium	1.3E−09	5.1E−08	1.8E−08	3.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.0E−09	3.2E−05	3.4E−04	7.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	6.2E−13	1.3E−11	1.0E−12	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5E−04	1.1E−04	1.4E−09	1.0E−08	1.9E−03	5.7E−06
chloroform	2.6E−15	8.9E−14	8.8E−18	7.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1E−06	2.1E−06	4.5E−11	3.5E−10	2.3E−05	1.8E−07
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.9E−02	2.7E−02	1.7E−06	1.3E−05	NA	2.5E−03
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−02	3.5E−03	4.3E−08	5.8E−07	NA	1.1E−03
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E−13	1.0E−11	8.7E−17	1.0E−15	NA	NA	NA	NA	NA	NA	4.6E−12	1.1E−12	2.9E−18	3.9E−17	3.4E−11	1.2E−13
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9E−05	1.8E−05	3.7E−10	2.8E−09	NA	1.4E−06
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E−07	8.9E−06	2.9E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	8.3E−15	5.9E−13	3.7E−12	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E−15	6.6E−14	2.9E−15	2.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–26d
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.0E−11	1.1E−09	3.6E−15	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	5.1E−07	1.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.3E−09	1.1E−07	3.7E−08	8.6E−08	NA	NA	NA	NA	NA	NA	1.6E−05	1.6E−05	2.7E−06	6.3E−06	NA	3.3E−08
arsenic	7.7E−10	2.7E−08	9.8E−09	6.9E−09	NA	NA	NA	NA	NA	NA	2.5E−05	9.4E−06	1.7E−06	1.2E−06	NA	4.9E−08
barium	6.3E−09	5.7E−07	4.3E−08	2.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	5.8E−11	1.9E−09	4.0E−10	8.4E−12	NA	NA	NA	NA	NA	NA	3.4E−07	1.2E−07	9.0E−09	1.9E−10	NA	6.9E−10
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.8E−10	1.4E−07	1.8E−08	7.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−09	4.8E−08	3.6E−08	2.3E−07	NA	NA	NA	NA	NA	NA	2.2E−05	1.1E−05	2.6E−06	1.7E−05	NA	8.6E−08
cobalt	5.6E−10	2.7E−08	8.4E−08	2.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	1.5E−09	4.2E−07	4.2E−07	1.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	9.6E−09	6.9E−07	5.5E−08	1.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	1.5E−06	7.2E−05	2.9E−05	5.3E−04	NA	NA	NA	NA	NA	NA	2.6E+00	1.4E+00	3.1E−01	5.8E+00	NA	5.2E−03
manganese	5.7E−08	5.6E−06	5.8E−07	1.2E−05	NA	NA	NA	NA	NA	NA	1.8E−02	2.1E−02	1.1E−03	2.3E−02	NA	3.7E−05
mercury	1.4E−11	6.0E−10	2.2E−08	9.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	3.5E−10	2.5E−08	2.9E−08	1.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.4E−09	3.3E−07	1.4E−07	5.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	4.7E−11	5.6E−09	6.7E−09	4.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	4.9E−10	8.4E−08	5.8E−08	9.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.9E−11	5.3E−10	4.1E−09	4.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	5.9E−08	1.6E−06	1.6E−08	1.1E−06	6.4E−05	3.8E−06	2.7E−04	1.4E−04	1.4E−05	NA	7.1E−04	1.9E−04	1.2E−06	9.0E−05	NA	1.4E−06
vanadium	1.3E−09	4.9E−08	1.7E−08	3.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	7.0E−09	3.2E−05	3.4E−04	7.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.6E−13	1.1E−11	9.1E−13	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.2E−15	7.6E−14	7.5E−18	6.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E−13	7.4E−12	6.4E−17	7.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E−06	4.2E−05	1.4E−07	1.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	6.4E−15	4.6E−13	2.8E−12	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E−15	4.1E−14	1.8E−15	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-26e
INTAKES FOR TOXICANTS FOR OFF-PROPERTY CHILD
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.4E-11	3.7E-09	1.2E-14	8.7E-14	1.5E-02	5.5E-08	4.0E-07	5.5E-06	5.5E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E-06	3.0E-05	NA	NA	NA	NA	NA	1.2E-01	1.2E-02	NA	NA	NA	NA	NA	NA	NA
antimony	1.7E-09	1.5E-07	4.7E-08	1.1E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	1.2E-09	4.1E-08	1.5E-08	1.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.7E-08	1.6E-06	1.2E-07	6.4E-06	2.6E-03	2.6E-04	1.4E-02	1.5E-03	1.5E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E-10	4.8E-09	1.0E-09	2.1E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.6E-10	2.8E-07	3.5E-08	1.5E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.6E-09	1.2E-07	9.0E-08	5.7E-07	NA	NA	NA	NA	NA	NA	1.5E-16	7.9E-17	1.9E-17	1.2E-16	NA	6.1E-19
cobalt	1.3E-09	6.2E-08	1.9E-07	4.5E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.6E-09	1.6E-06	1.6E-06	5.6E-06	6.1E-03	6.4E-03	2.2E-02	2.1E-04	2.1E-06	NA	NA	NA	NA	NA	NA	NA
lead	4.0E-08	2.9E-06	2.3E-07	4.5E-06	3.7E-04	4.4E-05	8.5E-04	3.6E-04	3.6E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	3.3E-06	1.6E-04	6.2E-05	1.2E-03	2.4E+00	1.4E+00	2.7E+01	3.9E-02	3.9E-03	NA	3.9E-14	2.1E-14	4.7E-15	8.9E-14	NA	7.9E-17
manganese	1.2E-07	1.1E-05	1.2E-06	2.4E-05	1.1E-01	1.5E-02	3.0E-01	1.9E-02	1.9E-03	NA	2.4E-20	2.8E-20	1.5E-21	3.1E-20	NA	4.8E-23
mercury	4.7E-11	2.0E-09	7.2E-08	3.0E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.2E-09	8.1E-08	9.4E-08	5.5E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	3.0E-09	7.1E-07	3.1E-07	1.2E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.0E-10	1.2E-08	1.5E-08	9.2E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	9.6E-10	1.7E-07	1.1E-07	1.8E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	4.7E-11	1.3E-09	1.0E-08	1.2E-08	1.9E-07	1.7E-05	1.9E-05	4.1E-06	4.1E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.7E-07	4.4E-06	4.5E-08	3.2E-06	1.2E-04	6.9E-06	4.9E-04	2.6E-04	2.6E-05	NA	3.1E-06	8.3E-07	5.5E-09	4.0E-07	NA	6.3E-09
vanadium	3.1E-09	1.2E-07	4.1E-08	7.7E-09	1.2E-04	9.6E-05	1.8E-05	3.4E-04	3.4E-06	NA	NA	NA	NA	NA	NA	NA
zinc	3.1E-08	1.4E-04	1.5E-03	3.5E-03	1.5E-01	1.6E+00	3.8E+00	1.5E-03	1.5E-04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.4E-12	4.9E-11	4.0E-12	5.2E-11	2.8E-06	5.3E-07	7.0E-06	9.6E-07	3.8E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.4E-14	4.8E-13	4.7E-17	3.8E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.0E-05	5.0E-06	3.7E-05	5.0E-06	1.5E-05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.9E-12	6.9E-11	6.0E-16	7.1E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.6E-05	4.8E-06	3.6E-05	3.6E-06	1.1E-05	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.4E-05	2.2E-06	1.6E-05	3.5E-06	1.0E-05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.6E-07	3.3E-05	1.1E-07	8.1E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.4E-14	2.4E-12	1.5E-11	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.4E-15	1.2E-13	5.4E-15	4.0E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–26f
INTAKES FOR TOXICANTS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.4E−11	3.7E−09	1.2E−14	8.7E−14	NA	NA	NA	NA	NA	NA	1.7E−02	1.1E−02	2.1E−08	1.6E−07	NA	1.6E−04
aluminum	8.3E−07	2.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.3E−09	1.1E−07	3.7E−08	8.6E−08	NA	NA	NA	NA	NA	NA	2.9E−08	2.9E−08	4.7E−09	1.1E−08	NA	5.8E−11
arsenic	8.9E−10	3.2E−08	1.1E−08	8.0E−09	NA	NA	NA	NA	NA	NA	6.6E−18	2.5E−18	4.5E−19	3.2E−19	NA	1.3E−20
barium	1.2E−08	1.0E−06	7.8E−08	4.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	9.6E−11	3.1E−09	6.6E−10	1.4E−11	NA	NA	NA	NA	NA	NA	1.2E−21	4.1E−22	3.1E−23	6.7E−25	NA	2.4E−24
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.5E−10	1.7E−07	2.2E−08	9.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.7E−09	7.7E−08	5.8E−08	3.7E−07	NA	NA	NA	NA	NA	NA	7.2E−05	3.7E−05	8.8E−06	5.7E−05	NA	2.9E−07
cobalt	8.3E−10	4.1E−08	1.2E−07	2.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	4.2E−09	1.2E−06	1.2E−06	4.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	1.0E−07	7.4E−06	5.9E−07	1.2E−05	NA	NA	NA	NA	NA	NA	1.5E−11	1.2E−11	4.5E−13	8.8E−12	NA	1.2E−16
magnesium	2.7E−06	1.3E−04	5.1E−05	9.6E−04	NA	NA	NA	NA	NA	NA	1.0E+01	5.2E+00	1.2E+00	2.2E+01	NA	2.0E−02
manganese	8.3E−08	8.2E−06	8.5E−07	1.7E−05	NA	NA	NA	NA	NA	NA	1.6E−04	1.9E−04	9.8E−06	2.0E−04	NA	3.2E−07
mercury	3.0E−11	1.3E−09	4.6E−08	1.9E−09	NA	NA	NA	NA	NA	NA	3.7E−11	1.7E−11	3.6E−10	1.5E−11	NA	7.4E−14
molybdenum	7.0E−10	5.0E−08	5.8E−08	3.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.9E−09	4.4E−07	1.9E−07	7.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	6.4E−11	7.6E−09	9.2E−09	5.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	7.0E−10	1.2E−07	8.4E−08	1.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.5E−11	6.9E−10	5.3E−09	6.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.3E−07	3.4E−06	3.5E−08	2.5E−06	6.4E−05	3.8E−06	2.7E−04	1.4E−04	1.4E−05	NA	5.6E−02	1.5E−02	9.8E−05	7.1E−03	NA	1.1E−04
vanadium	2.1E−09	8.1E−08	2.8E−08	5.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.0E−08	4.6E−05	4.9E−04	1.2E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	7.7E−13	1.5E−11	1.2E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−11	7.0E−12	8.8E−17	6.7E−16	1.2E−10	3.6E−13
chloroform	3.5E−15	1.2E−13	1.2E−17	9.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.7E−10	6.4E−10	1.4E−14	1.1E−13	7.2E−09	5.6E−11
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E−02	6.8E−03	4.4E−07	3.3E−06	NA	6.2E−04
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.1E−03	9.3E−04	1.1E−08	1.5E−07	NA	2.9E−04
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E−13	1.4E−11	1.2E−16	1.5E−15	NA	NA	NA	NA	NA	NA	8.1E−18	2.0E−18	5.2E−24	6.9E−23	6.0E−17	2.2E−19
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E−05	9.2E−06	1.9E−10	1.4E−09	NA	6.9E−07
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E−07	9.4E−06	3.0E−08	2.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.0E−14	7.3E−13	4.6E−12	3.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.7E−15	7.5E−14	3.3E−15	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-26g
INTAKES FOR TOXICANTS FOR OFF-PROPERTY CHILD AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.4E-11	3.1E-09	1.0E-14	7.4E-14	NA	NA	NA	NA	NA	NA
aluminum	8.3E-07	2.2E-05	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.5E-09	1.2E-07	4.0E-08	9.4E-08	8.6E-15	8.5E-15	1.4E-15	3.3E-15	NA	1.7E-17
arsenic	8.9E-10	3.2E-08	1.1E-08	8.0E-09	6.2E-26	2.3E-26	4.2E-27	3.0E-27	NA	1.2E-28
barium	1.2E-08	1.0E-06	7.8E-08	4.3E-06	NA	NA	NA	NA	NA	NA
beryllium	1.0E-10	3.3E-09	7.1E-10	1.5E-11	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.1E-10	2.0E-07	2.6E-08	1.1E-06	NA	NA	NA	NA	NA	NA
chromium vi	1.9E-09	8.6E-08	6.5E-08	4.2E-07	3.6E-11	1.9E-11	4.4E-12	2.9E-11	NA	1.4E-13
cobalt	8.9E-10	4.4E-08	1.3E-07	3.1E-07	NA	NA	NA	NA	NA	NA
copper	3.6E-09	1.0E-06	1.0E-06	3.6E-06	NA	NA	NA	NA	NA	NA
lead	4.9E-08	3.5E-06	2.8E-07	5.5E-06	NA	NA	NA	NA	NA	NA
magnesium	2.9E-06	1.4E-04	5.3E-05	1.0E-03	7.4E-08	3.8E-08	8.7E-09	1.7E-07	NA	1.5E-10
manganese	8.9E-08	8.9E-06	9.2E-07	1.9E-05	2.8E-09	3.3E-09	1.7E-10	3.6E-09	NA	5.6E-12
mercury	3.5E-11	1.5E-09	5.4E-08	2.3E-09	NA	NA	NA	NA	NA	NA
molybdenum	7.0E-10	5.0E-08	5.8E-08	3.4E-07	NA	NA	NA	NA	NA	NA
nickel	2.1E-09	5.0E-07	2.2E-07	8.4E-07	NA	NA	NA	NA	NA	NA
selenium	6.4E-11	7.6E-09	9.2E-09	5.7E-08	NA	NA	NA	NA	NA	NA
silver	6.4E-10	1.1E-07	7.6E-08	1.2E-05	NA	NA	NA	NA	NA	NA
thallium	2.9E-11	8.2E-10	6.3E-09	7.4E-09	NA	NA	NA	NA	NA	NA
uranium-total	1.5E-07	4.0E-06	4.2E-08	2.9E-06	8.2E-05	2.2E-05	1.4E-07	1.0E-05	NA	1.6E-07
vanadium	2.2E-09	8.3E-08	2.9E-08	5.4E-09	NA	NA	NA	NA	NA	NA
zinc	1.7E-08	7.5E-05	8.0E-04	1.9E-03	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	2.6E-11	2.1E-12	2.7E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.0E-15	2.4E-13	2.4E-17	1.9E-16	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.6E-03	7.3E-04	4.7E-08	3.6E-07	NA	6.7E-05
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E-12	3.1E-11	2.6E-16	3.1E-15	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.3E-07	1.9E-05	6.0E-08	4.5E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.7E-14	1.2E-12	7.4E-12	5.5E-11	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.9E-15	8.0E-14	3.5E-15	2.6E-14	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-26h
INTAKES FOR TOXICANTS FOR OFF-PROPERTY CHILD
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.4E-11	3.7E-09	1.2E-14	8.7E-14	NA	NA	NA	NA	NA	NA
aluminum	9.6E-07	2.5E-05	NA	NA	NA	NA	NA	NA	NA	NA
antimony	1.7E-09	1.5E-07	4.7E-08	1.1E-07	2.1E-08	2.0E-08	3.4E-09	7.9E-09	NA	4.1E-11
arsenic	1.0E-09	3.6E-08	1.3E-08	9.2E-09	3.2E-19	1.2E-19	2.2E-20	1.6E-20	NA	6.5E-22
barium	1.3E-08	1.2E-06	9.1E-08	5.0E-06	NA	NA	NA	NA	NA	NA
beryllium	1.2E-10	3.8E-09	8.0E-10	1.7E-11	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.5E-10	2.2E-07	2.8E-08	1.2E-06	NA	NA	NA	NA	NA	NA
chromium vi	2.0E-09	9.5E-08	7.2E-08	4.6E-07	8.8E-06	4.5E-06	1.1E-06	6.9E-06	NA	3.5E-08
cobalt	1.0E-09	5.0E-08	1.5E-07	3.6E-07	NA	NA	NA	NA	NA	NA
copper	4.1E-09	1.2E-06	1.2E-06	4.1E-06	NA	NA	NA	NA	NA	NA
lead	7.7E-08	5.5E-06	4.4E-07	8.6E-06	NA	NA	NA	NA	NA	NA
magnesium	3.4E-06	1.6E-04	6.3E-05	1.2E-03	2.9E+00	1.5E+00	3.4E-01	6.4E+00	NA	5.7E-03
manganese	1.0E-07	1.0E-05	1.0E-06	2.1E-05	5.1E-05	6.0E-05	3.2E-06	6.5E-05	NA	1.0E-07
mercury	4.2E-11	1.8E-09	6.5E-08	2.7E-09	8.6E-12	4.1E-12	8.3E-11	3.5E-12	NA	1.7E-14
molybdenum	8.3E-10	5.9E-08	6.8E-08	4.0E-07	NA	NA	NA	NA	NA	NA
nickel	2.3E-09	5.5E-07	2.4E-07	9.2E-07	NA	NA	NA	NA	NA	NA
selenium	7.0E-11	8.4E-09	1.0E-08	6.3E-08	NA	NA	NA	NA	NA	NA
silver	7.7E-10	1.3E-07	9.1E-08	1.4E-05	NA	NA	NA	NA	NA	NA
thallium	3.1E-11	8.5E-10	6.6E-09	7.7E-09	NA	NA	NA	NA	NA	NA
uranium-total	1.9E-07	5.1E-06	5.2E-08	3.7E-06	1.3E-02	3.4E-03	2.3E-05	1.7E-03	NA	2.6E-05
vanadium	2.4E-09	9.3E-08	3.2E-08	6.1E-09	NA	NA	NA	NA	NA	NA
zinc	1.4E-08	6.3E-05	6.8E-04	1.6E-03	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-12	2.1E-11	1.7E-12	2.2E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.5E-15	1.9E-13	1.8E-17	1.5E-16	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.6E-13	2.3E-11	2.0E-16	2.4E-15	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.9E-07	1.4E-05	4.4E-08	3.3E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.4E-14	1.0E-12	6.3E-12	4.6E-11	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-15	9.3E-14	4.1E-15	3.0E-14	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-26i
INTAKES FOR TOXICANTS FOR OFF-PROPERTY CHILD
NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.0E-12	5.9E-11	1.9E-16	1.4E-15	NA	NA	NA	NA	NA	NA
aluminum	1.6E-08	4.1E-07	NA	NA	NA	NA	NA	NA	NA	NA
antimony	3.0E-11	2.5E-09	8.2E-10	1.9E-09	8.1E-18	8.0E-18	1.3E-18	3.1E-18	NA	1.6E-20
arsenic	1.8E-11	6.4E-10	2.3E-10	1.6E-10	NA	NA	NA	NA	NA	NA
barium	2.3E-10	2.1E-08	1.6E-09	8.5E-08	NA	NA	NA	NA	NA	NA
beryllium	1.9E-12	6.3E-11	1.3E-11	2.8E-13	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.7E-12	3.8E-09	4.8E-10	2.0E-08	NA	NA	NA	NA	NA	NA
chromium vi	3.5E-11	1.6E-09	1.2E-09	7.7E-09	8.6E-06	4.4E-06	1.0E-06	6.8E-06	NA	3.4E-08
cobalt	1.7E-11	8.1E-10	2.5E-09	5.8E-09	NA	NA	NA	NA	NA	NA
copper	6.4E-11	1.8E-08	1.8E-08	6.4E-08	NA	NA	NA	NA	NA	NA
lead	9.6E-10	6.9E-08	5.5E-09	1.1E-07	NA	NA	NA	NA	NA	NA
magnesium	5.2E-08	2.5E-06	9.7E-07	1.8E-05	8.3E-01	4.3E-01	9.9E-02	1.9E+00	NA	1.7E-03
manganese	1.7E-09	1.7E-07	1.8E-08	3.6E-07	1.1E-06	1.3E-06	7.0E-08	1.4E-06	NA	2.3E-09
mercury	7.0E-13	3.0E-11	1.1E-09	4.5E-11	2.7E-14	1.3E-14	2.7E-13	1.1E-14	NA	5.5E-17
molybdenum	1.4E-11	1.0E-09	1.2E-09	6.8E-09	NA	NA	NA	NA	NA	NA
nickel	4.0E-11	9.4E-09	4.1E-09	1.6E-08	NA	NA	NA	NA	NA	NA
selenium	1.3E-12	1.6E-10	1.9E-10	1.2E-09	NA	NA	NA	NA	NA	NA
silver	1.3E-11	2.2E-09	1.5E-09	2.4E-07	NA	NA	NA	NA	NA	NA
thallium	5.6E-13	1.5E-11	1.2E-10	1.4E-10	NA	NA	NA	NA	NA	NA
uranium-total	3.1E-09	8.1E-08	8.4E-10	5.9E-08	7.9E-03	2.1E-03	1.4E-05	1.0E-03	NA	1.6E-05
vanadium	4.1E-11	1.6E-09	5.5E-10	1.0E-10	NA	NA	NA	NA	NA	NA
zinc	2.9E-10	1.3E-06	1.4E-05	3.2E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-14	4.4E-13	3.5E-14	4.7E-13	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E-16	4.1E-15	4.1E-19	3.3E-18	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.2E-14	5.4E-13	4.6E-18	5.5E-17	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E-08	4.2E-07	1.4E-09	1.0E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	3.1E-16	2.2E-14	1.4E-13	1.0E-12	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E-17	1.6E-15	6.8E-17	5.1E-16	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–27a
INTAKES FOR CARCINOGENS FOR GREAT MIAMI RIVER USER
CONFLUENCE WITH PADDYS RUN, FUTURE LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life			pCi/life		pCi/life
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.5E+02	1.6E+02	1.6E+00	6.0E−01	NA	NA	4.8E−01	NA	9.9E+01
Pu_{238}	2.6E+02	3.8E+01	1.4E−03	1.2E−03	NA	NA	1.4E−01	NA	7.4E+01
$Pu_{239/240}$	9.8E+01	1.5E+01	5.9E−04	4.9E−04	NA	NA	5.5E−02	NA	2.8E+01
Ra_{226+8d}	2.0E+04	3.7E+03	1.7E+02	1.3E+03	NA	NA	1.1E+01	NA	1.2E+04
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.1E+03	1.3E+03	1.4E+02	2.8E+03	NA	NA	2.9E+00	NA	1.8E+03
Tc_{99}	6.4E+06	1.1E+06	1.1E+06	5.3E+06	NA	NA	3.5E+03	NA	1.1E+06
Th_{230}	3.6E+03	5.6E+02	2.9E−01	9.9E−01	NA	NA	2.0E+00	NA	1.3E+03
$Th_{232+10d}$	2.7E+02	4.2E+01	2.2E−02	7.5E−02	NA	NA	1.5E−01	NA	9.5E+01
U_{234}	3.6E+06	5.5E+05	8.1E+03	1.0E+05	NA	NA	2.0E+03	NA	8.3E+04
$U_{235/236}$	2.2E+05	3.4E+04	5.0E+02	6.2E+03	NA	NA	1.2E+02	NA	5.1E+03
U_{238+2d}	4.2E+06	6.4E+05	9.5E+03	1.2E+05	NA	NA	2.3E+03	NA	9.7E+04
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	6.8E−06	1.5E−06	6.0E−07	7.3E−08	NA	2.0E−08	3.8E−09	4.2E−09	3.5E−06
beryllium	9.0E−08	1.8E−08	3.1E−09	1.1E−11	NA	2.6E−10	5.0E−11	5.6E−11	2.0E−08
cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	1.3E−07	5.0E−08	1.1E−11	1.4E−11	5.0E−07	1.2E−08	7.5E−11	7.9E−10	3.5E−08
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	1.2E−06	3.1E−07	4.5E−11	5.8E−11	4.4E−06	7.1E−08	6.6E−10	4.8E−09	2.2E−07
4−methylphenol	5.8E−05	7.6E−06	2.1E−10	4.7E−10	2.2E−04	5.8E−06	3.2E−08	4.6E−07	1.1E−05
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.4E−08	9.2E−09	1.8E−08	2.3E−08	NA	3.1E−07	7.8E−12	2.0E−08	3.6E−06
aroclor−1260	4.3E−09	1.1E−09	2.9E−08	3.8E−08	NA	6.0E−07	2.4E−12	3.9E−08	7.9E−06
4,4−ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.3E−09	1.3E−09	7.7E−10	1.0E−09	NA	3.6E−08	4.6E−12	2.4E−09	9.1E−07
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-28a
INTAKES FOR TOXICANTS FOR GREAT MIAMI RIVER USER CONFLUENCE WITH PADDYS RUN, FUTURE LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways:	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.3E-04	1.2E-04	5.1E-10	6.5E-10	NA	4.4E-06	1.8E-07	5.2E-07	4.2E-06
aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	3.6E-06	2.0E-06	7.6E-07	3.0E-07	NA	1.0E-08	2.0E-09	2.2E-09	4.2E-08
arsenic	6.8E-06	1.5E-06	6.0E-07	7.3E-08	NA	2.0E-08	3.8E-09	4.2E-09	3.5E-06
barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	9.0E-08	1.8E-08	3.1E-09	1.1E-11	NA	2.6E-10	5.0E-11	5.6E-11	2.0E-08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	1.5E-05	7.2E-06	5.9E-07	2.0E-06	NA	1.7E-10	8.4E-09	3.7E-11	8.5E-06
magnesium	5.0E-01	1.5E-01	7.7E-02	2.5E-01	NA	1.4E-03	2.8E-04	3.1E-04	NA
manganese	6.8E-04	4.6E-04	5.5E-05	1.9E-04	NA	2.0E-06	3.8E-07	4.2E-07	NA
mercury	3.8E-06	1.0E-06	4.7E-05	3.4E-07	NA	1.1E-08	2.1E-09	2.3E-09	2.4E-04
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	4.8E-03	7.3E-04	1.1E-05	1.3E-04	NA	1.4E-05	2.7E-06	2.9E-06	1.1E-07
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	1.3E-07	5.0E-08	1.1E-11	1.4E-11	5.0E-07	1.2E-08	7.5E-11	7.9E-10	3.5E-08
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	1.2E-06	3.1E-07	4.5E-11	5.8E-11	NA	7.1E-08	6.6E-10	4.8E-09	2.2E-07
4-methylphenol	5.8E-05	7.6E-06	2.1E-10	4.7E-10	NA	5.8E-06	3.2E-08	4.6E-07	1.1E-05
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	3.3E-06	1.2E-06	5.5E-11	7.1E-11	NA	2.3E-07	1.9E-09	1.6E-08	2.6E-07
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.3E-09	1.3E-09	7.7E-10	1.0E-09	NA	3.6E-08	4.6E-12	2.4E-09	9.1E-07
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29a
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	5.7E−01	4.6E+00	1.7E+01	2.3E+01	1.7E+04	1.5E+05	2.1E+05	4.0E+03	NA	3.7E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.6E−01	1.9E+00	3.5E−02	1.3E−02	2.3E+03	2.0E+02	7.4E+01	1.6E+03	NA	1.5E+01	2.8E+03	5.2E+02	5.4E+00	2.0E+00	NA	NA
Pu_{238}	7.4E+00	4.7E+01	3.4E−03	2.8E−03	1.1E+02	1.9E+00	1.5E+00	1.7E+04	NA	1.6E+02	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.0E+00	6.5E+00	1.2E−03	9.7E−04	3.1E+01	5.2E−01	4.1E−01	4.8E+03	NA	4.5E+01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.5E+02	1.1E+03	1.2E+02	8.9E+02	2.3E+03	1.4E+03	1.0E+04	1.1E+04	NA	1.0E+02	1.6E+05	2.9E+04	1.4E+03	1.0E+04	NA	NA
Ru_{106}	5.9E−01	3.7E+00	7.4E−01	9.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E+00	1.3E+01	2.3E+00	4.7E+01	2.5E+05	1.1E+05	2.1E+06	6.8E+03	NA	6.4E+01	1.6E+04	4.2E+03	4.4E+02	8.8E+03	NA	NA
Tc_{99}	6.9E+00	4.8E+01	7.7E+01	3.6E+02	5.1E+06	4.0E+07	1.9E+08	2.4E+04	NA	2.2E+02	1.6E+08	2.7E+07	2.8E+07	1.3E+08	NA	NA
Th_{230}	3.3E+02	2.1E+03	5.3E+00	1.8E+01	3.5E+03	3.8E+02	1.3E+03	2.8E+05	NA	2.6E+03	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.5E+01	1.6E+02	4.0E−01	1.3E+00	1.5E+03	1.6E+02	5.4E+02	1.2E+05	NA	1.1E+03	NA	NA	NA	NA	NA	NA
U_{234}	8.3E+02	5.3E+03	1.2E+02	1.5E+03	1.1E+06	1.5E+05	1.8E+06	1.9E+06	NA	1.8E+04	4.6E+07	7.0E+06	1.0E+05	1.3E+06	NA	NA
$U_{235/236}$	6.9E+01	4.4E+02	1.0E+01	1.2E+02	9.4E+04	1.2E+04	1.5E+05	1.6E+05	NA	1.5E+03	2.1E+06	3.2E+05	4.8E+03	5.9E+04	NA	NA
U_{238+2d}	9.1E+02	5.8E+03	1.4E+02	1.6E+03	1.4E+06	1.9E+05	2.3E+06	2.5E+06	NA	2.3E+04	4.5E+07	6.8E+06	1.0E+05	1.3E+06	NA	NA
Rn_{222+4d}	2.3E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.7E−09	4.1E−08	3.3E−08	3.9E−09	2.3E−05	5.6E−05	6.7E−06	2.7E−05	8.6E−07	NA	2.6E−04	5.8E−05	2.3E−05	2.8E−06	NA	7.6E−07
beryllium	5.2E−10	4.1E−09	2.0E−09	7.1E−12	6.4E−07	1.2E−06	4.4E−09	2.9E−06	9.4E−07	NA	1.2E−09	2.3E−10	4.0E−11	1.4E−13	NA	3.4E−12
cadmium	2.0E−09	2.4E−07	6.7E−08	4.9E−07	2.8E−04	8.3E−05	6.1E−04	1.3E−05	4.1E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.8E−09	1.1E−07	1.9E−07	2.1E−07	4.4E−05	1.4E−04	1.5E−04	6.8E−05	2.2E−05	NA	8.2E−06	2.5E−06	1.3E−06	1.4E−06	NA	4.7E−08
nickel	1.1E−08	6.4E−07	6.2E−07	4.1E−07	5.5E−04	5.5E−04	3.7E−04	6.3E−05	1.0E−06	NA	NA	NA	NA	NA	NA	NA
benzene	4.7E−15	5.3E−14	2.1E−17	2.8E−17	2.1E−06	9.9E−10	1.3E−09	6.5E−09	1.0E−10	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.4E−12	2.6E−11	4.8E−12	1.1E−11	2.7E−06	1.1E−06	2.5E−06	7.1E−07	9.0E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.2E−12	4.7E−11	5.2E−13	6.5E−13	1.9E−05	2.3E−07	2.9E−07	3.7E−07	3.5E−06	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.3E−14	2.7E−13	6.1E−17	8.2E−17	8.9E−06	2.5E−09	3.4E−09	2.3E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	3.2E−06	1.3E−09	1.7E−09	1.0E−08	9.6E−08	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	4.9E−08	2.1E−11	2.7E−11	1.4E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.3E−12	2.5E−11	4.9E−16	9.9E−16	3.8E−05	1.0E−09	2.1E−09	4.4E−08	4.2E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	5.6E−12	3.5E−11	2.3E−13	3.2E−13	5.2E−05	4.8E−07	6.7E−07	1.0E−06	9.9E−06	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.4E−14	7.7E−13	3.8E−17	5.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E−06	1.3E−05	9.1E−08	1.2E−07	3.3E−06	3.0E−08	3.8E−08	5.4E−08	7.0E−07	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.9E−06	4.3E−05	3.4E−08	4.4E−08	1.2E−05	1.1E−08	1.4E−08	5.2E−08	5.0E−07	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.8E−11	1.8E−10	2.3E−10	3.0E−10	1.0E−05	2.4E−05	3.1E−05	3.4E−06	3.2E−05	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E−11	2.0E−10	6.9E−10	8.7E−10	4.7E−06	4.0E−05	5.0E−05	2.8E−06	2.7E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E−11	2.0E−10	7.4E−10	9.5E−10	4.9E−06	4.4E−05	5.5E−05	3.0E−06	2.9E−05	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E−11	1.6E−10	3.4E−09	4.3E−09	1.5E−06	1.2E−04	1.6E−04	2.4E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA
chrysene	2.8E−11	1.9E−10	2.5E−10	3.1E−10	9.5E−06	2.3E−05	2.9E−05	3.2E−06	3.0E−05	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.0E−12	5.7E−11	1.1E−09	1.4E−09	5.5E−07	4.5E−05	5.8E−05	8.8E−07	8.4E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.0E−11	1.3E−10	1.4E−09	1.7E−09	2.0E−06	7.3E−05	9.3E−05	2.3E−06	2.2E−05	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.7E−11	1.3E−09	7.9E−09	9.9E−09	1.0E−05	7.1E−05	9.0E−05	5.6E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	5.6E−13	5.8E−12	6.4E−10	8.1E−10	5.6E−07	1.3E−04	1.6E−04	1.3E−06	2.6E−06	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.1E−13	1.9E−12	2.6E−11	3.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.3E−13	8.8E−13	1.3E−12	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.0E−14	1.9E−13	1.8E−13	2.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E−14	2.7E−13	2.6E−14	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	3.1E−12	9.4E−09	1.3E−08	2.3E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.3E−15	2.5E−14	1.9E−11	2.8E−11	4.4E−12	1.5E−07	2.1E−07	7.8E−11	7.4E−11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E−15	7.0E−15	8.2E−12	1.2E−11	4.1E−12	2.6E−07	3.7E−07	9.2E−11	8.8E−11	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29b
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	6.6E−02	5.3E−01	1.9E+00	2.7E+00	1.5E+04	1.3E+05	1.8E+05	3.4E+03	NA	3.2E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.7E−02	1.3E−01	2.3E−03	8.5E−04	5.2E+03	4.5E+02	1.6E+02	3.6E+03	NA	3.4E+01	1.2E+02	2.1E+01	2.2E−01	8.1E−02	NA	NA
Pu_{238}	4.1E−01	2.6E+00	1.9E−04	1.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.0E−01	6.3E−01	1.2E−04	9.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+Rd}	1.4E+01	1.0E+02	1.2E+01	8.4E+01	NA	NA	NA	NA	NA	NA	1.6E+05	2.9E+04	1.4E+03	1.0E+04	NA	NA
Ru_{106}	7.7E−02	4.8E−01	9.5E−02	1.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.2E−01	1.2E+00	2.1E−01	4.2E+00	2.2E+05	9.6E+04	1.9E+06	6.2E+03	NA	5.8E+01	6.7E+00	1.7E+00	1.8E−01	3.7E+00	NA	NA
Tc_{99}	8.7E−01	6.1E+00	9.7E+00	4.6E+01	1.5E+06	1.2E+07	5.6E+07	7.1E+03	NA	6.6E+01	6.0E+06	1.0E+06	1.0E+06	5.0E+06	NA	NA
Th_{230}	1.5E+01	9.7E+01	2.5E−01	8.2E−01	9.5E+01	1.0E+01	3.5E+01	7.7E+03	NA	7.3E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.6E+00	1.0E+01	2.7E−02	8.8E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.3E+01	2.7E+02	6.4E+00	7.7E+01	1.0E+04	1.4E+03	1.6E+04	1.8E+04	NA	1.7E+02	1.1E+05	1.6E+04	2.4E+02	3.0E+03	NA	NA
U_{235236}	3.8E+00	2.5E+01	5.7E−01	6.8E+00	1.8E+03	2.4E+02	2.9E+03	3.1E+03	NA	2.9E+01	4.9E+03	7.4E+02	1.1E+01	1.4E+02	NA	NA
U_{238+2d}	5.2E+01	3.3E+02	7.8E+00	9.3E+01	1.3E+04	1.7E+03	2.1E+04	2.2E+04	NA	2.1E+02	1.0E+05	1.6E+04	2.4E+02	2.9E+03	NA	NA
Rn_{222+4d}	3.6E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.2E−09	1.1E−08	8.6E−09	1.0E−09	NA	NA	NA	NA	NA	NA	3.7E−05	8.1E−06	3.3E−06	4.0E−07	NA	1.1E−07
beryllium	1.3E−10	1.0E−09	4.9E−10	1.8E−12	8.6E−07	1.6E−06	5.9E−09	3.9E−06	1.3E−06	NA	1.1E−20	2.1E−21	3.6E−22	1.3E−24	NA	3.1E−23
cadmium	7.1E−10	8.6E−08	2.4E−08	1.8E−07	9.1E−05	2.7E−05	2.0E−04	4.2E−06	1.3E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.4E−09	2.7E−08	4.6E−08	5.0E−08	2.3E−05	7.0E−05	7.7E−05	3.5E−05	1.1E−05	NA	1.6E−07	4.8E−08	2.5E−08	2.8E−08	NA	9.3E−10
nickel	3.2E−09	1.9E−07	1.8E−07	1.2E−07	3.6E−04	3.7E−04	2.4E−04	4.2E−05	6.7E−07	NA	NA	NA	NA	NA	NA	NA
benzene	1.6E−15	1.8E−14	7.4E−18	9.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.3E−12	6.3E−12	1.2E−12	2.6E−12	5.5E−06	2.3E−06	5.2E−06	1.5E−06	1.9E−07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.6E−13	3.5E−12	3.8E−14	4.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E−15	5.9E−14	1.3E−17	1.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E−13	1.6E−12	3.1E−17	6.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	1.0E−12	6.5E−12	4.3E−14	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	3.1E−14	2.5E−13	1.2E−17	1.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.1E−06	6.1E−05	4.4E−07	5.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.4E−05	2.0E−04	1.6E−07	2.0E−07	2.3E−06	2.0E−09	2.6E−09	9.9E−09	9.5E−08	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.4E−12	2.3E−11	2.9E−11	3.7E−11	3.5E−07	8.6E−07	1.1E−06	1.2E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.1E−12	2.6E−11	9.3E−11	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.1E−12	3.3E−11	1.2E−10	1.5E−10	2.2E−07	2.0E−06	2.5E−06	1.4E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.3E−12	2.8E−11	5.8E−10	7.4E−10	9.2E−08	7.6E−06	9.7E−06	1.5E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	4.3E−12	2.9E−11	3.8E−11	4.8E−11	5.7E−07	1.4E−06	1.8E−06	1.9E−07	1.8E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.3E−12	8.3E−12	1.6E−10	2.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.2E−12	2.1E−11	2.2E−10	2.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.0E−12	9.5E−11	5.6E−10	7.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.9E−13	2.0E−12	2.2E−10	2.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.0E−14	3.5E−13	4.9E−12	6.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	7.1E−15	4.9E−14	7.2E−14	9.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.1E−15	2.7E−14	2.5E−14	3.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E−15	2.2E−14	2.2E−15	2.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	8.4E−16	5.0E−15	3.8E−12	5.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.0E−16	2.4E−15	2.8E−12	3.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29c
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.5E−01	2.0E+00	7.1E+00	1.0E+01	1.5E+04	1.3E+05	1.9E+05	3.5E+03	NA	3.3E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.7E−02	4.2E−01	7.6E−03	2.8E−03	NA	NA	NA	NA	NA	NA	9.7E+02	1.8E+02	1.8E+00	6.8E−01	NA	NA
Pu_{238}	1.4E+00	8.7E+00	6.4E−04	5.1E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.0E−01	1.9E+00	3.6E−04	2.9E−04	7.5E+00	1.2E−01	1.0E−01	1.1E+03	NA	1.1E+01	NA	NA	NA	NA	NA	NA
Ra_{226+Rd}	1.9E+02	1.4E+03	1.6E+02	1.1E+03	4.1E+02	2.4E+02	1.8E+03	1.9E+03	NA	1.8E+01	1.6E+05	3.0E+04	1.4E+03	1.0E+04	NA	NA
Ru_{105}	1.1E−01	6.8E−01	1.4E−01	1.7E−04	3.2E+04	3.5E+04	4.4E+01	1.1E+04	NA	1.0E+02	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.9E−01	8.0E+00	1.4E+00	2.9E+01	4.1E+05	1.8E+05	3.6E+06	1.1E+04	NA	1.1E+02	4.0E+02	1.0E+02	1.1E+01	2.2E+02	NA	NA
Tc_{99}	7.8E+00	5.5E+01	8.7E+01	4.1E+02	NA	NA	NA	NA	NA	NA	5.2E+07	8.8E+06	9.0E+06	4.3E+07	NA	NA
Th_{230}	4.0E+02	2.6E+03	6.6E+00	2.2E+01	1.1E+02	1.2E+01	3.9E+01	8.5E+03	NA	8.0E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.3E+01	8.2E+01	2.1E−01	6.9E−01	1.2E+03	1.4E+02	4.6E+02	1.0E+05	NA	9.5E+02	NA	NA	NA	NA	NA	NA
U_{234}	2.5E+02	1.6E+03	3.8E+01	4.5E+02	5.3E+03	7.1E+02	8.5E+03	9.2E+03	NA	8.7E+01	2.4E+07	3.7E+06	5.6E+04	6.9E+05	NA	NA
$U_{235/236}$	1.9E+01	1.2E+02	2.8E+00	3.3E+01	3.2E+04	4.2E+03	5.1E+04	5.5E+04	NA	5.2E+02	1.1E+06	1.7E+05	2.5E+03	3.1E+04	NA	NA
U_{238+2d}	2.5E+02	1.6E+03	3.7E+01	4.5E+02	6.9E+03	9.1E+02	1.1E+04	1.2E+04	NA	1.1E+02	2.4E+07	3.6E+06	5.4E+04	6.7E+05	NA	NA
Rn_{222+4d}	1.3E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.3E−09	2.0E−08	1.6E−08	1.9E−09	NA	NA	NA	NA	NA	NA	1.3E−04	2.8E−05	1.1E−05	1.4E−06	NA	3.7E−07
beryllium	2.9E−10	2.3E−09	1.1E−09	3.9E−12	5.2E−07	1.0E−06	3.6E−09	2.4E−06	7.6E−07	NA	4.4E−14	8.6E−15	1.5E−15	5.4E−18	NA	1.3E−16
cadmium	1.2E−09	1.4E−07	4.1E−08	2.9E−07	1.3E−04	3.8E−05	2.7E−04	5.9E−06	1.9E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	5.1E−09	5.8E−08	9.8E−08	1.1E−07	2.5E−05	7.7E−05	8.4E−05	3.9E−05	1.2E−05	NA	3.5E−06	1.1E−06	5.6E−07	6.2E−07	NA	2.0E−08
nickel	5.9E−09	3.4E−07	3.3E−07	2.2E−07	4.4E−04	4.4E−04	2.9E−04	5.1E−05	8.1E−07	NA	NA	NA	NA	NA	NA	NA
benzene	7.1E−15	8.1E−14	3.2E−17	4.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.2E−12	2.5E−11	4.6E−12	1.0E−11	8.9E−07	3.8E−07	8.4E−07	2.4E−07	3.0E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.0E−12	4.2E−11	4.6E−13	5.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E−14	2.8E−13	6.3E−17	8.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.3E−12	3.1E−11	6.0E−16	1.2E−15	6.9E−05	1.9E−09	3.8E−09	8.1E−08	7.8E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	1.6E−12	9.7E−12	6.4E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.4E−13	1.1E−12	5.4E−17	7.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E−06	1.4E−05	9.9E−08	1.3E−07	2.6E−06	2.4E−08	3.0E−08	4.4E−08	5.6E−07	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.2E−06	4.8E−05	3.8E−08	4.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E−11	1.3E−10	1.7E−10	2.2E−10	2.7E−06	6.6E−06	8.4E−06	9.1E−07	8.7E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E−11	1.6E−10	5.5E−10	7.0E−10	1.2E−06	9.9E−06	1.3E−05	7.0E−07	6.8E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E−11	1.5E−10	5.5E−10	7.0E−10	4.0E−06	3.5E−05	4.5E−05	2.4E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E−11	1.6E−10	3.3E−09	4.2E−09	2.7E−07	2.2E−05	2.8E−05	4.3E−07	4.1E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	1.9E−11	1.3E−10	1.6E−10	2.1E−10	4.3E−06	1.1E−05	1.3E−05	1.4E−06	1.4E−05	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.1E−12	5.2E−11	1.0E−09	1.3E−09	6.1E−08	5.0E−06	6.4E−06	9.8E−08	9.4E−07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.5E−11	9.8E−11	1.0E−09	1.3E−09	3.1E−07	1.1E−05	1.4E−05	3.5E−07	3.4E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	3.0E−11	7.0E−10	4.1E−09	5.2E−09	6.6E−08	4.6E−07	5.8E−07	3.6E−08	6.9E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	8.6E−13	8.8E−12	9.8E−10	1.2E−09	1.4E−07	3.1E−05	4.0E−05	3.3E−07	6.4E−07	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.8E−14	1.4E−12	1.9E−11	2.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.5E−14	1.8E−13	2.6E−13	3.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.2E−15	4.0E−14	3.7E−14	4.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.0E−15	5.4E−14	5.3E−15	6.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.7E−15	1.0E−14	7.8E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.7E−15	1.0E−14	1.2E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29d
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.1E−01	8.9E−01	3.2E+00	4.5E+00	9.9E+03	8.5E+04	1.2E+05	2.3E+03	NA	2.1E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.6E−02	2.7E−01	4.8E−03	1.8E−03	NA	NA	NA	NA	NA	NA	3.0E+04	5.4E+03	5.7E+01	2.1E+01	NA	NA
Pu_{238}	1.9E+00	1.2E+01	8.6E−04	6.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E−01	1.4E+00	2.6E−04	2.1E−04	1.7E+01	2.9E−01	2.3E−01	2.6E+03	NA	2.5E+01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.8E+01	2.1E+02	2.3E+01	1.7E+02	NA	NA	NA	NA	NA	NA	7.9E+05	1.4E+05	6.8E+03	4.9E+04	NA	NA
Ru_{106}	5.4E−02	3.4E−01	6.7E−02	8.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.8E−01	2.8E+00	5.1E−01	1.0E+01	3.4E+05	1.5E+05	2.9E+06	9.4E+03	NA	8.8E+01	6.6E+05	1.7E+05	1.8E+04	3.6E+05	NA	NA
Tc_{99}	2.3E+00	1.6E+01	2.6E+01	1.2E+02	NA	NA	NA	NA	NA	NA	3.3E+08	5.7E+07	5.8E+07	2.8E+08	NA	NA
Th_{230}	1.1E+02	6.8E+02	1.7E+00	5.8E+00	9.7E+01	1.1E+01	3.6E+01	7.9E+03	NA	7.4E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	7.0E+00	4.5E+01	1.1E−01	3.8E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.0E+02	1.3E+03	2.9E+01	3.5E+02	1.7E+04	2.3E+03	2.7E+04	3.0E+04	NA	2.8E+02	1.5E+08	2.3E+07	3.4E+05	4.3E+06	NA	NA
$U_{235/236}$	1.5E+01	9.7E+01	2.2E+00	2.7E+01	2.0E+03	2.7E+02	3.3E+03	3.5E+03	NA	3.3E+01	6.9E+06	1.1E+06	1.6E+04	1.9E+05	NA	NA
U_{238+2d}	2.1E+02	1.3E+03	3.1E+01	3.7E+02	1.2E+04	1.6E+03	1.9E+04	2.1E+04	NA	1.9E+02	1.5E+08	2.3E+07	3.4E+05	4.2E+06	NA	NA
Rn_{222+4d}	1.6E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.3E−09	1.1E−08	9.0E−09	1.1E−09	NA	NA	NA	NA	NA	NA	1.6E−04	3.4E−05	1.4E−05	1.7E−06	NA	4.5E−07
beryllium	1.6E−10	1.2E−09	5.9E−10	2.1E−12	7.5E−07	1.4E−06	5.2E−09	3.5E−06	1.1E−06	NA	3.3E−06	6.4E−07	1.1E−07	4.0E−10	NA	9.4E−09
cadmium	5.0E−10	6.0E−08	1.7E−08	1.2E−07	1.5E−04	4.4E−05	3.2E−04	6.9E−06	2.2E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.5E−09	2.8E−08	4.7E−08	5.2E−08	2.1E−05	6.6E−05	7.2E−05	3.3E−05	1.0E−05	NA	2.9E−04	8.7E−05	4.6E−05	5.1E−05	NA	1.7E−06
nickel	2.8E−09	1.6E−07	1.6E−07	1.0E−07	3.2E−04	3.2E−04	2.2E−04	3.7E−05	5.9E−07	NA	NA	NA	NA	NA	NA	NA
benzene	8.4E−16	9.6E−15	3.8E−18	5.0E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.4E−12	6.7E−12	1.2E−12	2.7E−12	4.7E−07	2.0E−07	4.5E−07	1.3E−07	1.6E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.8E−13	1.0E−11	1.1E−13	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.1E−15	5.0E−14	1.1E−17	1.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−13	4.9E−12	9.5E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.9E−13	3.0E−12	2.0E−14	2.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.7E−14	1.4E−13	6.7E−18	9.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.9E−07	3.3E−06	2.4E−08	3.1E−08	4.5E−07	4.1E−09	5.2E−09	7.4E−09	9.5E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.8E−07	1.2E−05	9.2E−09	1.2E−08	1.1E−06	1.0E−09	1.3E−09	4.9E−09	4.7E−08	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.9E−12	3.2E−11	4.1E−11	5.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.4E−12	3.5E−11	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.6E−12	3.6E−11	1.3E−10	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.7E−12	3.0E−11	6.3E−10	8.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.9E−12	3.3E−11	4.3E−11	5.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.6E−12	1.0E−11	2.0E−10	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.6E−12	2.3E−11	2.4E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.2E−11	2.8E−10	1.6E−09	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.0E−13	1.1E−12	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.9E−14	3.4E−13	4.7E−12	6.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.6E−14	1.8E−13	2.6E−13	3.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.6E−15	2.3E−14	2.1E−14	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E−15	4.4E−14	4.3E−15	5.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.1E−16	2.4E−15	1.9E−12	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.1E−16	1.3E−15	1.5E−12	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29e
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.1E−01	9.1E−01	3.2E+00	4.6E+00	1.5E+04	1.3E+05	1.8E+05	3.4E+03	NA	3.2E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.3E−02	3.2E−01	5.8E−03	2.1E−03	NA	NA	NA	NA	NA	NA	2.3E+04	4.2E+03	4.4E+01	1.6E+01	NA	NA
Pu_{238}	2.2E+00	1.4E+01	1.0E−03	8.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.6E−01	1.6E+00	3.0E−04	2.4E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.3E+01	1.7E+02	1.9E+01	1.4E+02	NA	NA	NA	NA	NA	NA	6.7E+05	1.2E+05	5.8E+03	4.2E+04	NA	NA
Ru_{106}	8.9E−02	5.6E−01	1.1E−01	1.4E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.7E−01	2.7E+00	4.9E−01	9.7E+00	2.6E+05	1.1E+05	2.2E+06	7.1E+03	NA	6.6E+01	4.4E+05	1.2E+05	1.2E+04	2.4E+05	NA	NA
Tc_{99}	1.4E+00	9.7E+00	1.6E+01	7.3E+01	1.2E+06	9.7E+06	4.5E+07	5.7E+03	NA	5.4E+01	2.4E+08	4.0E+07	4.1E+07	2.0E+08	NA	NA
Th_{230}	1.1E+02	7.1E+02	1.8E+00	6.0E+00	1.3E+02	1.4E+01	4.6E+01	1.0E+04	NA	9.6E+01	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.9E+00	3.8E+01	9.7E−02	3.2E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.1E+02	1.3E+03	3.1E+01	3.7E+02	4.9E+04	6.5E+03	7.8E+04	8.5E+04	NA	8.0E+02	1.1E+08	1.6E+07	2.4E+05	3.0E+06	NA	NA
$U_{235/236}$	1.7E+01	1.1E+02	2.6E+00	3.1E+01	6.3E+03	8.3E+02	1.0E+04	1.1E+04	NA	1.0E+02	4.8E+06	7.3E+05	1.1E+04	1.3E+05	NA	NA
U_{238+2d}	2.3E+02	1.5E+03	3.5E+01	4.1E+02	9.2E+04	1.2E+04	1.5E+05	1.6E+05	NA	1.5E+03	1.0E+08	1.6E+07	2.3E+05	2.9E+06	NA	NA
Rn_{222+4d}	1.2E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.5E−09	1.3E−08	1.0E−08	1.2E−09	NA	NA	NA	NA	NA	NA	1.4E−04	3.1E−05	1.2E−05	1.5E−06	NA	4.0E−07
beryllium	1.6E−10	1.2E−09	5.9E−10	2.1E−12	9.1E−07	1.7E−06	6.3E−09	4.2E−06	1.3E−06	NA	3.1E−06	6.0E−07	1.0E−07	3.8E−10	NA	8.8E−09
cadmium	5.0E−10	6.0E−08	1.7E−08	1.2E−07	7.0E−05	2.1E−05	1.5E−04	3.2E−06	1.0E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.3E−09	2.6E−08	4.5E−08	4.9E−08	NA	NA	NA	NA	NA	NA	2.3E−04	6.8E−05	3.6E−05	4.0E−05	NA	1.3E−06
nickel	2.8E−09	1.6E−07	1.6E−07	1.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	7.1E−16	8.1E−15	3.3E−18	4.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.2E−12	1.1E−11	2.0E−12	4.4E−12	6.5E−06	2.8E−06	6.2E−06	1.7E−06	2.2E−07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.2E−13	6.9E−12	7.6E−14	9.7E−14	9.1E−07	1.1E−08	1.4E−08	1.7E−08	1.7E−07	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.1E−15	3.4E−14	7.5E−18	1.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.9E−13	3.4E−12	6.7E−17	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	5.7E−13	3.6E−12	2.3E−14	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.4E−14	1.1E−13	5.4E−18	7.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E−07	4.0E−06	2.9E−08	3.7E−08	3.0E−07	2.7E−09	3.5E−09	4.9E−09	6.3E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	9.7E−07	1.4E−05	1.1E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.7E−12	3.1E−11	4.0E−11	5.0E−11	5.0E−07	1.2E−06	1.5E−06	1.7E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.1E−12	3.3E−11	1.1E−10	1.5E−10	2.5E−07	2.1E−06	2.7E−06	1.5E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.2E−12	3.4E−11	1.2E−10	1.6E−10	2.6E−07	2.4E−06	3.0E−06	1.6E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.0E−12	2.6E−11	5.4E−10	6.9E−10	1.2E−07	9.8E−06	1.2E−05	1.9E−07	1.8E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	5.1E−12	3.4E−11	4.5E−11	5.7E−11	6.5E−07	1.6E−06	2.0E−06	2.2E−07	2.1E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−12	9.1E−12	1.8E−10	2.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.5E−12	2.2E−11	2.4E−10	3.0E−10	1.1E−07	3.9E−06	5.0E−06	1.2E−07	1.2E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.1E−11	2.6E−10	1.5E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	8.4E−14	8.6E−13	9.5E−11	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.8E−14	3.2E−13	4.4E−12	5.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.6E−14	1.8E−13	2.6E−13	3.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.0E−15	2.5E−14	2.4E−14	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.1E−15	4.8E−14	4.8E−15	6.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.5E−16	2.7E−15	2.1E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.7E−16	1.0E−15	1.2E−12	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29f
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.0E−01	8.3E−01	2.9E+00	4.1E+00	2.1E+04	1.8E+05	2.5E+05	4.9E+03	NA	4.6E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.9E−02	2.9E−01	5.3E−03	1.9E−03	6.9E+03	6.0E+02	2.2E+02	4.8E+03	NA	4.5E+01	1.2E+04	2.2E+03	2.3E+01	8.6E+00	NA	NA
Pu_{238}	5.6E−01	3.5E+00	2.6E−04	2.1E−04	8.6E+00	1.4E−01	1.2E−01	1.3E+03	NA	1.2E+01	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.3E−01	8.1E−01	1.5E−04	1.2E−04	8.6E+00	1.4E−01	1.2E−01	1.3E+03	NA	1.2E+01	NA	NA	NA	NA	NA	NA
Ra_{226+Rd}	2.9E+01	2.2E+02	2.4E+01	1.7E+02	3.3E+04	2.0E+04	1.4E+05	1.5E+05	NA	1.4E+03	5.9E+05	1.1E+05	5.1E+03	3.7E+04	NA	NA
Ru_{106}	2.6E−01	1.6E+00	3.2E−01	3.9E−04	3.8E+04	4.3E+04	5.3E+01	1.4E+04	NA	1.3E+02	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.1E−01	2.1E+00	3.8E−01	7.6E+00	2.4E+05	1.0E+05	2.1E+06	6.6E+03	NA	6.2E+01	1.6E+05	4.3E+04	4.4E+03	8.9E+04	NA	NA
Tc_{99}	1.1E+00	7.4E+00	1.2E+01	5.6E+01	1.2E+06	8.9E+06	4.2E+07	5.3E+03	NA	5.0E+01	1.6E+07	2.7E+06	2.8E+06	1.3E+07	NA	NA
Th_{230}	3.8E+01	2.5E+02	6.2E−01	2.1E+00	1.9E+03	2.1E+02	7.1E+02	1.6E+05	NA	1.5E+03	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.4E+00	1.6E+01	4.0E−02	1.3E−01	1.4E+02	1.5E+01	5.1E+01	1.1E+04	NA	1.1E+02	NA	NA	NA	NA	NA	NA
U_{234}	5.6E+01	3.6E+02	8.3E+00	9.9E+01	8.4E+04	1.1E+04	1.3E+05	1.4E+05	NA	1.4E+03	2.8E+06	4.3E+05	6.5E+03	8.0E+04	NA	NA
$U_{235/236}$	5.4E+00	3.5E+01	8.1E−01	9.7E+00	3.6E+03	4.8E+02	5.7E+03	6.2E+03	NA	5.8E+01	1.3E+05	2.0E+04	2.9E+02	3.6E+03	NA	NA
U_{238+2d}	6.6E+01	4.2E+02	9.8E+00	1.2E+02	1.8E+05	2.4E+04	2.9E+05	3.2E+05	NA	3.0E+03	2.8E+06	4.2E+05	6.3E+03	7.8E+04	NA	NA
Rn_{222+4d}	3.8E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.5E−09	3.9E−08	3.2E−08	3.8E−09	2.1E−05	5.1E−05	6.2E−06	2.5E−05	7.9E−07	NA	4.7E−05	1.0E−05	4.1E−06	5.0E−07	NA	1.3E−07
beryllium	2.3E−10	1.9E−09	8.8E−10	3.2E−12	4.0E−07	7.6E−07	2.7E−09	1.8E−06	5.8E−07	NA	7.0E−07	1.4E−07	2.4E−08	8.7E−11	NA	2.0E−09
cadmium	1.4E−09	1.7E−07	4.9E−08	3.5E−07	3.1E−04	9.2E−05	6.7E−04	1.4E−05	4.6E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.6E−09	5.2E−08	8.8E−08	9.6E−08	2.5E−05	7.6E−05	8.3E−05	3.8E−05	1.2E−05	NA	3.3E−05	1.0E−05	5.3E−06	5.8E−06	NA	1.9E−07
nickel	6.3E−09	3.6E−07	3.5E−07	2.3E−07	4.8E−04	4.8E−04	3.2E−04	5.5E−05	8.8E−07	NA	NA	NA	NA	NA	NA	NA
benzene	9.7E−16	1.1E−14	4.4E−18	5.7E−18	2.4E−06	1.1E−09	1.4E−09	7.4E−09	1.2E−10	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−12	6.0E−12	1.1E−12	2.5E−12	3.4E−05	1.5E−05	3.3E−05	9.1E−06	1.2E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.2E−13	6.9E−12	7.6E−14	9.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−15	4.0E−14	8.9E−18	1.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−13	4.9E−12	9.5E−17	1.9E−16	5.9E−05	1.6E−09	3.2E−09	6.9E−08	6.6E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	1.9E−12	1.2E−11	8.0E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.9E−14	1.6E−13	7.8E−18	1.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.2E−06	2.8E−05	2.0E−07	2.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.4E−06	9.5E−05	7.6E−08	9.6E−08	3.4E−06	3.0E−09	3.9E−09	1.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E−12	2.8E−11	3.6E−11	4.6E−11	9.6E−06	2.3E−05	3.0E−05	3.2E−06	3.1E−05	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.9E−12	3.1E−11	1.1E−10	1.4E−10	4.0E−06	3.4E−05	4.3E−05	2.4E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.9E−12	3.1E−11	1.1E−10	1.4E−10	9.6E−06	8.6E−05	1.1E−04	5.9E−06	5.7E−05	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.7E−12	3.0E−11	6.3E−10	8.0E−10	9.4E−08	7.8E−06	9.8E−06	1.5E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	4.2E−12	2.8E−11	3.7E−11	4.7E−11	8.1E−06	2.0E−05	2.5E−05	2.7E−06	2.6E−05	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−12	8.7E−12	1.7E−10	2.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.0E−12	1.9E−11	2.1E−10	2.6E−10	8.7E−08	3.1E−06	4.0E−06	9.9E−08	9.5E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.8E−12	1.4E−10	8.1E−10	1.0E−09	6.3E−08	4.4E−07	5.5E−07	3.5E−08	6.6E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.2E−13	1.2E−12	1.3E−10	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.7E−14	3.0E−13	4.3E−12	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	9.7E−15	6.7E−14	9.9E−14	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.8E−15	5.0E−14	4.6E−14	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.7E−15	3.9E−14	3.8E−15	4.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.4E−15	8.4E−15	6.5E−12	9.3E−12	1.2E−10	4.2E−06	6.0E−06	2.2E−09	2.1E−09	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.5E−16	1.5E−15	1.7E−12	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–29g
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.2E−01	9.4E−01	3.3E+00	4.7E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.8E−02	2.8E−01	5.1E−03	1.9E−03	NA	NA	NA	NA	NA	NA	3.0E+04	5.4E+03	5.7E+01	2.1E+01	NA	NA
Pu_{238}	1.7E+00	1.1E+01	8.1E−04	6.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	2.2E−01	1.4E+00	2.6E−04	2.1E−04	4.9E+01	8.2E−01	6.5E−01	7.5E+03	NA	7.1E+01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.9E+05	1.4E+05	6.8E+03	4.9E+04	NA	NA
Ru_{106}	6.1E−02	3.8E−01	7.6E−02	9.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.6E−01	3.6E+00	6.6E−01	1.3E+01	2.7E+05	1.2E+05	2.3E+06	7.4E+03	NA	7.0E+01	6.6E+05	1.7E+05	1.8E+04	3.6E+05	NA	NA
Tc_{99}	4.3E+00	3.0E+01	4.8E+01	2.3E+02	NA	NA	NA	NA	NA	NA	3.3E+08	5.7E+07	5.8E+07	2.8E+08	NA	NA
Th_{230}	1.4E+02	8.9E+02	2.3E+00	7.6E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.1E+02	1.3E+03	3.1E+01	3.7E+02	9.3E+03	1.2E+03	1.5E+04	1.6E+04	NA	1.5E+02	1.5E+08	2.3E+07	3.4E+05	4.3E+06	NA	NA
U_{235236}	1.6E+01	1.0E+02	2.4E+00	2.9E+01	2.1E+03	2.8E+02	3.3E+03	3.6E+03	NA	3.4E+01	6.9E+06	1.1E+06	1.6E+04	1.9E+05	NA	NA
U_{238+2d}	2.1E+02	1.3E+03	3.1E+01	3.7E+02	6.9E+03	9.1E+02	1.1E+04	1.2E+04	NA	1.1E+02	1.5E+08	2.3E+07	3.4E+05	4.2E+06	NA	NA
Rn_{222+4d}	2.3E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.9E−09	1.7E−08	1.4E−08	1.6E−09	2.9E−05	6.8E−05	8.2E−06	3.3E−05	1.0E−06	NA	1.6E−04	3.4E−05	1.4E−05	1.7E−06	NA	4.5E−07
beryllium	2.1E−10	1.6E−09	7.8E−10	2.8E−12	3.9E−07	7.5E−07	2.7E−09	1.8E−06	5.7E−07	NA	3.3E−06	6.4E−07	1.1E−07	4.0E−10	NA	9.4E−09
cadmium	7.8E−10	9.4E−08	2.7E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E−09	4.2E−08	7.1E−08	7.7E−08	6.9E−05	2.1E−04	2.3E−04	1.1E−04	3.4E−05	NA	2.9E−04	8.7E−05	4.6E−05	5.1E−05	NA	1.7E−06
nickel	4.0E−09	2.3E−07	2.2E−07	1.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.1E−15	1.3E−14	5.0E−18	6.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.5E−12	7.3E−12	1.3E−12	3.0E−12	5.7E−07	2.4E−07	5.5E−07	1.5E−07	2.0E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	6.5E−13	1.4E−11	1.5E−13	1.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E−15	5.9E−14	1.3E−17	1.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−12	6.4E−12	1.2E−16	2.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	5.2E−13	3.3E−12	2.2E−14	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.1E−14	1.7E−13	8.3E−18	1.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.1E−07	3.5E−06	2.6E−08	3.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.4E−07	1.2E−05	9.9E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.4E−12	4.1E−11	1.4E−10	1.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.5E−12	4.2E−11	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.7E−12	3.7E−11	7.7E−10	9.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	5.6E−12	3.8E−11	4.9E−11	6.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.0E−12	1.3E−11	2.5E−10	3.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.1E−12	2.6E−11	2.8E−10	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.2E−11	2.8E−10	1.6E−09	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.3E−13	1.3E−12	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.1E−14	3.6E−13	5.0E−12	6.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.4E−14	1.7E−13	2.4E−13	3.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.6E−15	2.3E−14	2.1E−14	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E−15	4.4E−14	4.3E−15	5.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.5E−16	2.7E−15	2.1E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E−16	1.6E−15	1.8E−12	2.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-30a
INTAKES FOR TOXICANTS FOR RME ON-PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.5E-10	3.5E-09	2.5E-14	3.2E-14	7.4E-03	6.0E-08	7.6E-08	2.1E-06	6.7E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	4.7E-06	2.9E-05	NA	NA	NA	NA	NA	3.0E-02	9.6E-03	NA	NA	NA	NA	NA	NA	NA
antimony	1.1E-08	2.2E-07	1.6E-07	6.4E-08	2.5E-04	2.5E-04	1.0E-04	5.8E-05	1.9E-05	NA	1.0E-03	5.8E-04	2.1E-04	8.6E-05	NA	2.9E-06
arsenic	4.7E-09	4.1E-08	3.3E-08	3.9E-09	2.3E-05	5.6E-05	6.7E-06	2.7E-05	8.6E-07	NA	2.6E-04	5.8E-05	2.3E-05	2.8E-06	NA	7.6E-07
barium	8.5E-08	1.9E-06	3.1E-07	2.9E-06	1.2E-03	2.9E-04	2.7E-03	5.7E-04	1.8E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	5.2E-10	4.1E-09	2.0E-09	7.1E-12	6.4E-07	1.2E-06	4.4E-09	2.9E-06	9.4E-07	NA	1.2E-09	2.3E-10	4.0E-11	1.4E-13	NA	3.4E-12
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.0E-09	2.4E-07	6.7E-08	4.9E-07	2.8E-04	8.3E-05	6.1E-04	1.3E-05	4.1E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.8E-09	1.1E-07	1.9E-07	2.1E-07	4.4E-05	1.4E-04	1.5E-04	6.8E-05	2.2E-05	NA	8.2E-06	2.5E-06	1.3E-06	1.4E-06	NA	4.7E-08
cobalt	4.9E-09	5.8E-08	4.0E-07	1.6E-07	3.0E-05	3.7E-04	1.5E-04	2.9E-05	9.4E-06	NA	NA	NA	NA	NA	NA	NA
copper	1.6E-08	1.1E-06	2.5E-06	1.5E-06	3.8E-03	9.0E-03	5.4E-03	1.1E-04	3.4E-06	NA	NA	NA	NA	NA	NA	NA
lead	1.9E-07	3.3E-06	5.9E-07	2.0E-06	3.9E-04	1.0E-04	3.5E-04	3.0E-04	9.6E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	1.2E-05	1.4E-04	1.3E-04	4.0E-04	8.1E-01	1.1E+00	3.4E+00	1.0E-02	3.2E-03	NA	1.1E+01	3.4E+00	1.7E+00	5.6E+00	NA	3.2E-02
manganese	4.5E-07	1.1E-05	2.5E-06	8.8E-06	1.0E-02	3.1E-03	1.1E-02	1.4E-03	4.5E-04	NA	6.5E-02	4.4E-02	5.2E-03	1.8E-02	NA	1.9E-04
mercury	2.8E-10	2.9E-09	2.4E-07	1.7E-09	4.8E-05	7.8E-03	5.6E-05	1.6E-06	2.6E-06	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.1E-09	7.1E-08	1.8E-07	1.8E-07	1.6E-04	6.1E-04	6.1E-04	1.9E-05	6.0E-06	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E-08	6.4E-07	6.2E-07	4.1E-07	5.5E-04	5.5E-04	3.7E-04	6.3E-05	1.0E-06	NA	NA	NA	NA	NA	NA	NA
selenium	6.2E-10	1.8E-08	4.8E-08	5.2E-08	7.8E-06	2.3E-05	2.5E-05	2.1E-06	6.8E-07	NA	NA	NA	NA	NA	NA	NA
silver	4.2E-09	1.8E-07	2.7E-07	7.3E-06	1.7E-04	3.0E-04	8.0E-03	1.2E-05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.5E-10	1.0E-09	1.8E-08	3.6E-09	6.5E-08	1.3E-05	2.6E-06	1.1E-06	3.6E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.3E-06	8.6E-06	2.0E-07	2.4E-06	1.3E-03	1.8E-04	2.1E-03	2.3E-03	7.3E-04	NA	7.5E-02	1.1E-02	1.7E-04	2.1E-03	NA	2.2E-04
vanadium	1.2E-08	1.1E-07	8.6E-08	2.7E-09	2.9E-05	5.4E-05	1.7E-06	6.7E-05	2.2E-06	NA	NA	NA	NA	NA	NA	NA
zinc	6.5E-08	7.1E-05	1.7E-03	6.8E-04	4.5E-02	1.1E+00	4.4E-01	3.5E-04	1.1E-04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.4E-12	2.6E-11	4.8E-12	1.1E-11	2.7E-06	1.1E-06	2.5E-06	7.1E-07	9.0E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.3E-14	2.7E-13	6.1E-17	8.2E-17	8.9E-06	2.5E-09	3.4E-09	2.3E-08	2.2E-07	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	9.7E-06	9.9E-10	1.3E-09	1.2E-08	1.2E-07	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	3.2E-06	1.3E-09	1.7E-09	1.0E-08	9.6E-08	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.1E-05	1.9E-05	2.5E-05	6.7E-06	6.4E-05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.3E-12	2.5E-11	4.9E-16	9.9E-16	3.8E-05	1.0E-09	2.1E-09	4.4E-08	4.2E-07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.9E-05	2.0E-05	2.5E-05	5.1E-06	4.9E-05	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	7.5E-05	1.1E-05	1.4E-05	5.9E-06	5.6E-05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E-06	1.3E-05	9.1E-08	1.2E-07	3.3E-06	3.0E-08	3.8E-08	5.4E-08	7.0E-07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	1.0E-05	1.1E-08	1.4E-08	5.0E-08	4.8E-07	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.1E-13	1.9E-12	2.6E-11	3.3E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E-14	2.7E-13	2.6E-14	3.4E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-30b
INTAKES FOR TOXICANTS FOR RME ON-PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	5.0E-11	7.0E-10	5.0E-15	6.3E-15	4.6E-03	3.7E-08	4.7E-08	1.3E-06	4.2E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E-06	7.8E-06	NA	NA	NA	NA	NA	2.4E-02	7.8E-03	NA	NA	NA	NA	NA	NA	NA
antimony	2.6E-09	5.3E-08	3.9E-08	1.6E-08	3.4E-05	3.5E-05	1.4E-05	7.9E-06	2.5E-06	NA	5.9E-06	3.4E-06	1.3E-06	5.0E-07	NA	1.7E-08
arsenic	1.2E-09	1.1E-08	8.6E-09	1.0E-09	NA	NA	NA	NA	NA	NA	3.7E-05	8.1E-06	3.3E-06	4.0E-07	NA	1.1E-07
barium	1.4E-08	3.0E-07	5.0E-08	4.7E-07	5.4E-04	1.2E-04	1.2E-03	2.5E-04	8.0E-05	NA	NA	NA	NA	NA	NA	NA
beryllium	1.3E-10	1.0E-09	4.9E-10	1.8E-12	8.6E-07	1.6E-06	5.9E-09	3.9E-06	1.3E-06	NA	1.1E-20	2.1E-21	3.6E-22	1.3E-24	NA	3.1E-23
boron	NA	NA	NA	NA	1.0E-02	2.4E-03	1.8E-02	3.5E-05	1.1E-05	NA	NA	NA	NA	NA	NA	NA
cadmium	7.1E-10	8.6E-08	2.4E-08	1.8E-07	9.1E-05	2.7E-05	2.0E-04	4.2E-06	1.3E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.4E-09	2.7E-08	4.6E-08	5.0E-08	2.3E-05	7.0E-05	7.7E-05	3.5E-05	1.1E-05	NA	1.6E-07	4.8E-08	2.5E-08	2.8E-08	NA	9.3E-10
cobalt	1.4E-09	1.7E-08	1.2E-07	4.7E-08	3.0E-05	3.7E-04	1.5E-04	3.0E-05	9.5E-06	NA	NA	NA	NA	NA	NA	NA
copper	3.4E-09	2.3E-07	5.2E-07	3.1E-07	1.5E-03	3.5E-03	2.1E-03	4.0E-05	1.3E-06	NA	NA	NA	NA	NA	NA	NA
lead	1.4E-08	2.5E-07	4.5E-08	1.5E-07	7.4E-05	1.9E-05	6.5E-05	5.6E-05	1.8E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	4.1E-06	4.7E-05	4.1E-05	1.3E-04	3.5E+00	4.6E+00	1.5E+01	4.3E-02	1.4E-02	NA	5.6E+00	1.7E+00	8.5E-01	2.8E+00	NA	1.6E-02
manganese	1.2E-07	2.8E-06	6.5E-07	2.3E-06	1.7E-02	5.1E-03	1.8E-02	2.3E-03	7.5E-04	NA	1.2E-02	7.9E-03	9.4E-04	3.3E-03	NA	3.4E-05
mercury	2.2E-11	2.3E-10	1.8E-08	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.0E-09	1.8E-08	4.7E-08	4.7E-08	2.5E-04	9.4E-04	9.4E-04	2.9E-05	9.2E-06	NA	NA	NA	NA	NA	NA	NA
nickel	3.2E-09	1.9E-07	1.8E-07	1.2E-07	3.6E-04	3.7E-04	2.4E-04	4.2E-05	6.7E-07	NA	NA	NA	NA	NA	NA	NA
selenium	1.2E-10	3.4E-09	9.2E-09	9.8E-09	6.9E-06	2.1E-05	2.2E-05	1.9E-06	6.1E-07	NA	NA	NA	NA	NA	NA	NA
silver	1.2E-09	4.9E-08	7.6E-08	2.0E-06	1.4E-04	2.5E-04	6.6E-03	9.6E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.7E-11	3.9E-10	6.7E-09	1.3E-09	9.6E-08	1.9E-05	3.9E-06	1.7E-06	5.3E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	9.1E-08	5.8E-07	1.4E-08	1.6E-07	2.1E-05	2.8E-06	3.4E-05	3.6E-05	1.2E-05	NA	1.7E-04	2.7E-05	4.0E-07	4.9E-06	NA	5.0E-07
vanadium	3.1E-09	2.9E-08	2.3E-08	7.3E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	4.1E-08	4.5E-05	1.1E-03	4.4E-04	2.2E-02	5.3E-01	2.1E-01	1.7E-04	5.4E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	6.3E-12	1.2E-12	2.6E-12	5.5E-06	2.3E-06	5.2E-06	1.5E-06	1.9E-07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E-15	5.9E-14	1.3E-17	1.8E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.0E-06	1.1E-06	1.5E-06	3.9E-07	3.8E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-13	1.6E-12	3.1E-17	6.2E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.8E-06	1.2E-06	1.6E-06	3.2E-07	3.1E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.0E-06	4.3E-07	5.5E-07	2.3E-07	2.2E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.1E-06	6.1E-05	4.4E-07	5.6E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.0E-14	3.5E-13	4.9E-12	6.2E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-15	2.2E-14	2.2E-15	2.8E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-30c
INTAKES FOR TOXICANTS FOR RME ON-PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.4E-10	2.0E-09	1.4E-14	1.8E-14	4.7E-03	3.8E-08	4.8E-08	1.3E-06	4.2E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	2.3E-06	1.5E-05	NA	NA	NA	NA	NA	2.6E-02	8.4E-03	NA	NA	NA	NA	NA	NA	NA
antimony	3.7E-09	7.6E-08	5.6E-08	2.2E-08	5.5E-05	5.5E-05	2.2E-05	1.3E-05	4.0E-06	NA	1.1E-03	6.3E-04	2.3E-04	9.4E-05	NA	3.2E-06
arsenic	2.3E-09	2.0E-08	1.6E-08	1.9E-09	NA	NA	NA	NA	NA	NA	1.3E-04	2.8E-05	1.1E-05	1.4E-06	NA	3.7E-07
barium	3.2E-08	7.1E-07	1.2E-07	1.1E-06	7.2E-04	1.7E-04	1.5E-03	3.3E-04	1.1E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	2.9E-10	2.3E-09	1.1E-09	3.9E-12	5.2E-07	1.0E-06	3.6E-09	2.4E-06	7.6E-07	NA	4.4E-14	8.6E-15	1.5E-15	5.4E-18	NA	1.3E-16
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.2E-09	1.4E-07	4.1E-08	2.9E-07	1.3E-04	3.8E-05	2.7E-04	5.9E-06	1.9E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	5.1E-09	5.8E-08	9.8E-08	1.1E-07	2.5E-05	7.7E-05	8.4E-05	3.9E-05	1.2E-05	NA	3.5E-06	1.1E-06	5.6E-07	6.2E-07	NA	2.0E-08
cobalt	2.5E-09	3.0E-08	2.1E-07	8.2E-08	3.6E-05	4.4E-04	1.8E-04	3.5E-05	1.1E-05	NA	NA	NA	NA	NA	NA	NA
copper	1.1E-08	7.3E-07	1.6E-06	9.8E-07	1.8E-03	4.2E-03	2.5E-03	4.9E-05	1.6E-06	NA	NA	NA	NA	NA	NA	NA
lead	1.0E-07	1.8E-06	3.3E-07	1.1E-06	2.5E-04	6.6E-05	2.2E-04	1.9E-04	6.2E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	7.7E-06	8.8E-05	7.8E-05	2.5E-04	9.8E+00	1.3E+01	4.1E+01	1.2E-01	3.9E-02	NA	6.9E+00	2.1E+00	1.1E+00	3.4E+00	NA	2.0E-02
manganese	2.5E-07	5.9E-06	1.4E-06	4.8E-06	3.3E-02	9.7E-03	3.4E-02	4.5E-03	1.4E-03	NA	2.2E-02	1.5E-02	1.8E-03	6.2E-03	NA	6.4E-05
mercury	9.4E-11	9.7E-10	7.8E-08	5.6E-10	8.6E-06	1.4E-03	1.0E-05	3.0E-07	4.7E-07	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.2E-09	3.8E-08	9.8E-08	9.8E-08	2.4E-04	9.0E-04	9.0E-04	2.8E-05	8.9E-06	NA	NA	NA	NA	NA	NA	NA
nickel	5.9E-09	3.4E-07	3.3E-07	2.2E-07	4.4E-04	4.4E-04	2.9E-04	5.1E-05	8.1E-07	NA	NA	NA	NA	NA	NA	NA
selenium	1.9E-10	5.5E-09	1.5E-08	1.6E-08	4.7E-06	1.4E-05	1.5E-05	1.3E-06	4.2E-07	NA	NA	NA	NA	NA	NA	NA
silver	1.8E-09	7.7E-08	1.2E-07	3.2E-06	4.7E-05	8.2E-05	2.2E-03	3.2E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	9.2E-11	6.2E-10	1.1E-08	2.2E-09	1.0E-07	2.0E-05	4.1E-06	1.7E-06	5.6E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	3.7E-07	2.4E-06	5.5E-08	6.6E-07	3.4E-04	4.5E-05	5.5E-04	5.9E-04	1.9E-04	NA	4.0E-02	6.1E-03	9.1E-05	1.1E-03	NA	1.1E-04
vanadium	6.0E-09	5.6E-08	4.4E-08	1.4E-09	3.3E-05	6.2E-05	2.0E-06	7.7E-05	2.5E-06	NA	NA	NA	NA	NA	NA	NA
zinc	6.2E-08	6.8E-05	1.6E-03	6.5E-04	9.8E-02	2.4E+00	9.5E-01	7.5E-04	2.4E-04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.2E-12	2.5E-11	4.6E-12	1.0E-11	8.9E-07	3.8E-07	8.4E-07	2.4E-07	3.0E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E-14	2.8E-13	6.3E-17	8.6E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	9.4E-06	3.5E-06	4.5E-06	1.2E-06	1.2E-05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.3E-12	3.1E-11	6.0E-16	1.2E-15	6.9E-05	1.9E-09	3.8E-09	8.1E-08	7.8E-07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.1E-05	7.7E-06	9.8E-06	2.0E-06	1.9E-05	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	8.4E-06	1.2E-06	1.5E-06	6.6E-07	6.3E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E-06	1.4E-05	9.9E-08	1.3E-07	2.6E-06	2.4E-08	3.0E-08	4.4E-08	5.6E-07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	7.8E-14	1.4E-12	1.9E-11	2.4E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.0E-15	5.4E-14	5.3E-15	6.8E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–30d
INTAKES FOR TOXICANTS FOR RME ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	8.4E−11	1.2E−09	8.4E−15	1.1E−14	5.2E−03	4.2E−08	5.3E−08	1.5E−06	4.7E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.3E−06	8.2E−06	NA	NA	NA	NA	NA	2.1E−02	6.6E−03	NA	NA	NA	NA	NA	NA	NA
antimony	2.0E−09	4.1E−08	3.0E−08	1.2E−08	1.1E−04	1.1E−04	4.6E−05	2.6E−05	8.3E−06	NA	8.0E−05	4.5E−05	1.7E−05	6.8E−06	NA	2.3E−07
arsenic	1.3E−09	1.1E−08	9.0E−09	1.1E−09	NA	NA	NA	NA	NA	NA	1.6E−04	3.4E−05	1.4E−05	1.7E−06	NA	4.5E−07
barium	1.9E−08	4.1E−07	7.0E−08	6.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.6E−10	1.2E−09	5.9E−10	2.1E−12	7.5E−07	1.4E−06	5.2E−09	3.5E−06	1.1E−06	NA	3.3E−06	6.4E−07	1.1E−07	4.0E−10	NA	9.4E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.0E−10	6.0E−08	1.7E−08	1.2E−07	1.5E−04	4.4E−05	3.2E−04	6.9E−06	2.2E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.5E−09	2.8E−08	4.7E−08	5.2E−08	2.1E−05	6.6E−05	7.2E−05	3.3E−05	1.0E−05	NA	2.9E−04	8.7E−05	4.6E−05	5.1E−05	NA	1.7E−06
cobalt	1.3E−09	1.5E−08	1.1E−07	4.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.2E−09	3.6E−07	8.0E−07	4.8E−07	1.2E−03	2.9E−03	1.7E−03	3.4E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.0E−07	1.8E−06	3.3E−07	1.1E−06	2.0E−04	5.2E−05	1.7E−04	1.5E−04	4.8E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	3.9E−06	4.4E−05	4.0E−05	1.3E−04	3.5E+00	4.6E+00	1.5E+01	4.4E−02	1.4E−02	NA	3.7E+01	1.1E+01	5.7E+00	1.8E+01	NA	1.1E−01
manganese	1.3E−07	3.1E−06	7.2E−07	2.5E−06	NA	NA	NA	NA	NA	NA	3.7E−02	2.5E−02	3.0E−03	1.0E−02	NA	1.1E−04
mercury	5.2E−11	5.4E−10	4.3E−08	3.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdemum	9.7E−10	1.7E−08	4.4E−08	4.4E−08	1.8E−04	6.6E−04	6.6E−04	2.0E−05	6.5E−06	NA	NA	NA	NA	NA	NA	NA
nickel	2.8E−09	1.6E−07	1.6E−07	1.0E−07	3.2E−04	3.2E−04	2.2E−04	3.7E−05	5.9E−07	NA	NA	NA	NA	NA	NA	NA
selenium	1.2E−10	3.4E−09	9.2E−09	9.8E−09	7.2E−06	2.2E−05	2.3E−05	2.0E−06	6.3E−07	NA	NA	NA	NA	NA	NA	NA
silver	9.7E−10	4.1E−08	6.3E−08	1.7E−06	3.1E−04	5.5E−04	1.5E−02	2.1E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.5E−11	2.4E−10	4.1E−09	8.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	3.3E−07	2.1E−06	4.9E−08	5.9E−07	2.0E−05	2.7E−06	3.2E−05	3.5E−05	1.1E−05	NA	2.5E−01	3.8E−02	5.6E−04	7.0E−03	NA	7.1E−04
vanadium	3.2E−09	3.0E−08	2.3E−08	7.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.6E−08	1.7E−05	4.1E−04	1.6E−04	2.0E−02	4.8E−01	1.9E−01	1.5E−04	4.9E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	1.4E−12	6.7E−12	1.2E−12	2.7E−12	4.7E−07	2.0E−07	4.5E−07	1.3E−07	1.6E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.1E−15	5.0E−14	1.1E−17	1.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−13	4.9E−12	9.5E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	8.3E−07	5.6E−07	7.1E−07	1.5E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.9E−07	3.3E−06	2.4E−08	3.1E−08	4.5E−07	4.1E−09	5.2E−09	7.4E−09	9.5E−08	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	1.9E−14	3.4E−13	4.7E−12	6.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E−15	4.4E−14	4.3E−15	5.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-30e
INTAKES FOR TOXICANTS FOR RME ON-PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.2E-11	8.7E-10	6.2E-15	7.9E-15	3.8E-03	3.1E-08	3.9E-08	1.1E-06	3.5E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E-06	7.8E-06	NA	NA	NA	NA	NA	2.3E-02	7.5E-03	NA	NA	NA	NA	NA	NA	NA
antimony	2.4E-09	4.9E-08	3.6E-08	1.4E-08	NA	NA	NA	NA	NA	NA	3.3E-04	1.9E-04	7.1E-05	2.8E-05	NA	9.6E-07
arsenic	1.5E-09	1.3E-08	1.0E-08	1.2E-09	NA	NA	NA	NA	NA	NA	1.4E-04	3.1E-05	1.2E-05	1.5E-06	NA	4.0E-07
barium	2.0E-08	4.4E-07	7.4E-08	6.9E-07	5.3E-04	1.2E-04	1.1E-03	2.4E-04	7.8E-05	NA	NA	NA	NA	NA	NA	NA
beryllium	1.6E-10	1.2E-09	5.9E-10	2.1E-12	9.1E-07	1.7E-06	6.3E-09	4.2E-06	1.3E-06	NA	3.1E-06	6.0E-07	1.0E-07	3.8E-10	NA	8.8E-09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.0E-10	6.0E-08	1.7E-08	1.2E-07	7.0E-05	2.1E-05	1.5E-04	3.2E-06	1.0E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.3E-09	2.6E-08	4.5E-08	4.9E-08	NA	NA	NA	NA	NA	NA	2.3E-04	6.8E-05	3.6E-05	4.0E-05	NA	1.3E-06
cobalt	1.3E-09	1.5E-08	1.1E-07	4.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.6E-09	2.5E-07	5.5E-07	3.3E-07	1.2E-03	2.9E-03	1.7E-03	3.4E-05	1.1E-06	NA	NA	NA	NA	NA	NA	NA
lead	3.9E-08	6.8E-07	1.2E-07	4.1E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	3.3E-06	3.8E-05	3.4E-05	1.1E-04	NA	NA	NA	NA	NA	NA	2.4E+01	7.1E+00	3.6E+00	1.2E+01	NA	6.8E-02
manganese	1.4E-07	3.3E-06	7.6E-07	2.7E-06	2.2E-02	6.6E-03	2.3E-02	3.1E-03	9.8E-04	NA	3.2E-02	2.2E-02	2.6E-03	9.1E-03	NA	9.3E-05
mercury	5.7E-11	5.9E-10	4.8E-08	3.4E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	9.1E-10	1.6E-08	4.1E-08	4.1E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	2.8E-09	1.6E-07	1.6E-07	1.0E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.4E-10	4.1E-09	1.1E-08	1.2E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	9.7E-10	4.1E-08	6.3E-08	1.7E-06	1.7E-05	3.0E-05	8.1E-04	1.2E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.7E-11	2.5E-10	4.3E-09	8.6E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	3.8E-07	2.4E-06	5.6E-08	6.7E-07	1.4E-04	1.8E-05	2.2E-04	2.4E-04	7.5E-05	NA	1.7E-01	2.6E-02	3.9E-04	4.8E-03	NA	4.9E-04
vanadium	3.0E-09	2.8E-08	2.2E-08	7.1E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.5E-08	1.6E-05	3.9E-04	1.6E-04	2.7E-02	6.6E-01	2.6E-01	2.1E-04	6.7E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-12	1.1E-11	2.0E-12	4.4E-12	6.5E-06	2.8E-06	6.2E-06	1.7E-06	2.2E-07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.1E-15	3.4E-14	7.5E-18	1.0E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.6E-06	1.4E-06	1.7E-06	4.7E-07	4.5E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.9E-13	3.4E-12	6.7E-17	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.1E-06	1.4E-06	1.8E-06	3.7E-07	3.5E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.4E-06	4.9E-07	6.3E-07	2.7E-07	2.6E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E-07	4.0E-06	2.9E-08	3.7E-08	3.0E-07	2.7E-09	3.5E-09	4.9E-09	6.3E-08	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.8E-14	3.2E-13	4.4E-12	5.6E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.1E-15	4.8E-14	4.8E-15	6.1E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–30f
INTAKES FOR TOXICANTS FOR RME ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	7.8E−11	1.1E−09	7.8E−15	9.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	2.4E−06	1.5E−05	NA	NA	NA	NA	NA	2.5E−02	7.8E−03	NA	NA	NA	NA	NA	NA	NA
antimony	7.1E−09	1.5E−07	1.1E−07	4.3E−08	3.2E−04	3.3E−04	1.3E−04	7.4E−05	2.4E−05	NA	1.3E−03	7.2E−04	2.7E−04	1.1E−04	NA	3.7E−06
arsenic	4.5E−09	3.9E−08	3.2E−08	3.8E−09	2.1E−05	5.1E−05	6.2E−06	2.5E−05	7.9E−07	NA	4.7E−05	1.0E−05	4.1E−06	5.0E−07	NA	1.3E−07
barium	2.6E−08	5.7E−07	9.6E−08	9.0E−07	3.8E−04	8.7E−05	8.1E−04	1.7E−04	5.5E−05	NA	NA	NA	NA	NA	NA	NA
beryllium	2.3E−10	1.9E−09	8.8E−10	3.2E−12	4.0E−07	7.6E−07	2.7E−09	1.8E−06	5.8E−07	NA	7.0E−07	1.4E−07	2.4E−08	8.7E−11	NA	2.0E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.4E−09	1.7E−07	4.9E−08	3.5E−07	3.1E−04	9.2E−05	6.7E−04	1.4E−05	4.6E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.6E−09	5.2E−08	8.8E−08	9.6E−08	2.5E−05	7.6E−05	8.3E−05	3.8E−05	1.2E−05	NA	3.3E−05	1.0E−05	5.3E−06	5.8E−06	NA	1.9E−07
cobalt	2.6E−09	3.1E−08	2.1E−07	8.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.9E−09	4.1E−07	9.1E−07	5.5E−07	1.7E−03	3.9E−03	2.4E−03	4.6E−05	1.5E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.9E−08	3.3E−07	5.9E−08	2.0E−07	6.2E−05	1.6E−05	5.5E−05	4.8E−05	1.5E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	5.7E−06	6.5E−05	5.8E−05	1.9E−04	NA	NA	NA	NA	NA	NA	4.5E+00	1.4E+00	7.0E−01	2.3E+00	NA	1.3E−02
manganese	2.9E−07	7.0E−06	1.6E−06	5.7E−06	NA	NA	NA	NA	NA	NA	2.7E−02	1.8E−02	2.2E−03	7.5E−03	NA	7.7E−05
mercury	4.6E−11	4.8E−10	3.9E−08	2.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.4E−09	2.3E−08	6.1E−08	6.1E−08	1.1E−04	4.2E−04	4.2E−04	1.3E−05	4.1E−06	NA	NA	NA	NA	NA	NA	NA
nickel	6.3E−09	3.6E−07	3.5E−07	2.3E−07	4.8E−04	4.8E−04	3.2E−04	5.5E−05	8.8E−07	NA	NA	NA	NA	NA	NA	NA
selenium	2.1E−10	6.2E−09	1.7E−08	1.8E−08	7.5E−06	2.3E−05	2.4E−05	2.1E−06	6.6E−07	NA	NA	NA	NA	NA	NA	NA
silver	2.4E−09	1.0E−07	1.6E−07	4.2E−06	1.6E−04	2.9E−04	7.6E−03	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.0E−10	7.0E−10	1.2E−08	2.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.1E−07	7.1E−07	1.6E−08	2.0E−07	1.2E−04	1.5E−05	1.8E−04	2.0E−04	6.3E−05	NA	4.7E−03	7.1E−04	1.1E−05	1.3E−04	NA	1.3E−05
vanadium	6.0E−09	5.6E−08	4.4E−08	1.4E−09	2.6E−05	4.8E−05	1.5E−06	6.0E−05	1.9E−06	NA	NA	NA	NA	NA	NA	NA
zinc	2.4E−08	2.6E−05	6.3E−04	2.5E−04	2.6E−02	6.2E−01	2.5E−01	2.0E−04	6.3E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−12	6.0E−12	1.1E−12	2.5E−12	3.4E−05	1.5E−05	3.3E−05	9.1E−06	1.2E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−15	4.0E−14	8.9E−18	1.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	4.7E−05	1.8E−05	2.3E−05	6.2E−06	5.9E−05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−13	4.9E−12	9.5E−17	1.9E−16	5.9E−05	1.6E−09	3.2E−09	6.9E−08	6.6E−07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.8E−05	2.6E−05	3.3E−05	6.7E−06	6.4E−05	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	2.1E−04	3.0E−05	3.9E−05	1.7E−05	1.6E−04	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.2E−06	2.8E−05	2.0E−07	2.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.7E−14	3.0E−13	4.3E−12	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.7E−15	3.9E−14	3.8E−15	4.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–30g
INTAKES FOR TOXICANTS FOR RME ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.5E−10	2.1E−09	1.5E−14	1.9E−14	1.7E−02	1.4E−07	1.8E−07	4.9E−06	1.6E−06	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E−06	1.2E−05	NA	NA	NA	NA	NA	2.0E−02	6.5E−03	NA	NA	NA	NA	NA	NA	NA
antimony	3.0E−09	6.1E−08	4.5E−08	1.8E−08	4.4E−05	4.4E−05	1.8E−05	1.0E−05	3.2E−06	NA	8.0E−05	4.5E−05	1.7E−05	6.8E−06	NA	2.3E−07
arsenic	1.9E−09	1.7E−08	1.4E−08	1.6E−09	2.9E−05	6.8E−05	8.2E−06	3.3E−05	1.0E−06	NA	1.6E−04	3.4E−05	1.4E−05	1.7E−06	NA	4.5E−07
barium	2.5E−08	5.6E−07	9.4E−08	8.7E−07	4.8E−04	1.1E−04	1.0E−03	2.2E−04	7.0E−05	NA	NA	NA	NA	NA	NA	NA
beryllium	2.1E−10	1.6E−09	7.8E−10	2.8E−12	3.9E−07	7.5E−07	2.7E−09	1.8E−06	5.7E−07	NA	3.3E−06	6.4E−07	1.1E−07	4.0E−10	NA	9.4E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.8E−10	9.4E−08	2.7E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E−09	4.2E−08	7.1E−08	7.7E−08	6.9E−05	2.1E−04	2.3E−04	1.1E−04	3.4E−05	NA	2.9E−04	8.7E−05	4.6E−05	5.1E−05	NA	1.7E−06
cobalt	1.9E−09	2.2E−08	1.5E−07	6.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	9.7E−09	6.7E−07	1.5E−06	9.0E−07	1.6E−03	3.8E−03	2.3E−03	4.5E−05	1.4E−06	NA	NA	NA	NA	NA	NA	NA
lead	2.4E−07	4.2E−06	7.6E−07	2.5E−06	7.0E−03	1.8E−03	6.2E−03	5.4E−03	1.7E−03	NA	NA	NA	NA	NA	NA	NA
magnesium	6.2E−06	7.1E−05	6.3E−05	2.0E−04	NA	NA	NA	NA	NA	NA	3.7E+01	1.1E+01	5.7E+00	1.8E+01	NA	1.1E−01
manganese	1.9E−07	4.5E−06	1.1E−06	3.7E−06	1.7E−02	5.0E−03	1.7E−02	2.3E−03	7.3E−04	NA	3.7E−02	2.5E−02	3.0E−03	1.0E−02	NA	1.1E−04
mercury	7.1E−11	7.4E−10	6.0E−08	4.3E−10	4.5E−04	7.4E−02	5.3E−04	1.6E−05	2.5E−05	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.6E−09	2.8E−08	7.3E−08	7.3E−08	1.8E−04	6.8E−04	6.8E−04	2.1E−05	6.7E−06	NA	NA	NA	NA	NA	NA	NA
nickel	4.0E−09	2.3E−07	2.2E−07	1.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.4E−10	3.9E−09	1.1E−08	1.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	1.6E−09	6.5E−08	1.0E−07	2.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.4E−11	3.7E−10	6.4E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	3.3E−07	2.1E−06	4.9E−08	5.9E−07	2.7E−05	3.6E−06	4.3E−05	4.7E−05	1.5E−05	NA	2.5E−01	3.8E−02	5.6E−04	7.0E−03	NA	7.1E−04
vanadium	4.7E−09	4.4E−08	3.5E−08	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.3E−08	2.5E−05	6.0E−04	2.4E−04	2.8E−02	6.8E−01	2.7E−01	2.2E−04	6.9E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	1.5E−12	7.3E−12	1.3E−12	3.0E−12	5.7E−07	2.4E−07	5.5E−07	1.5E−07	2.0E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.1E−15	5.9E−14	1.3E−17	1.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−12	6.4E−12	1.2E−16	2.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	2.1E−14	3.6E−13	5.0E−12	6.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.5E−15	4.4E−14	4.3E−15	5.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–31a
INTAKES FOR CARCINOGENS FOR CT ON–PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	4.2E−02	2.6E−01	8.4E−01	1.1E+00	9.5E+02	7.5E+03	9.5E+03	2.3E+02	NA	3.1E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.9E−02	1.1E−01	1.7E−03	5.8E−04	1.3E+02	1.0E+01	3.4E+00	9.4E+01	NA	1.3E+00	1.7E+02	2.9E+01	2.7E−01	9.1E−02	NA	NA
Pu_{238}	5.5E−01	2.6E+00	1.7E−04	1.3E−04	6.2E+00	9.5E−02	6.9E−02	1.0E+03	NA	1.4E+01	NA	NA	NA	NA	NA	NA
Pu_{239240}	7.6E−02	3.6E−01	6.1E−05	4.5E−05	1.7E+00	2.6E−02	1.9E−02	2.8E+02	NA	3.7E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.1E+01	6.1E+01	6.3E+00	4.1E+01	1.3E+02	7.0E+01	4.6E+02	6.3E+02	NA	8.5E+00	9.5E+03	1.6E+03	6.9E+01	4.6E+02	NA	NA
Ru_{106}	4.4E−02	2.0E−01	3.7E−02	4.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	9.5E−02	7.1E−01	1.2E−01	2.2E+00	1.4E+04	5.4E+03	9.8E+04	4.0E+02	NA	5.4E+00	9.7E+02	2.3E+02	2.2E+01	4.0E+02	NA	NA
Tc_{99}	5.1E−01	2.6E+00	3.9E+00	1.7E+01	2.8E+05	2.0E+06	8.6E+06	1.4E+03	NA	1.9E+01	9.7E+06	1.5E+06	1.4E+06	6.1E+06	NA	NA
Th_{230}	2.4E+01	1.1E+02	2.7E−01	8.1E−01	1.9E+02	1.9E+01	5.8E+01	1.6E+04	NA	2.2E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.8E+00	8.7E+00	2.0E−02	6.1E−02	8.0E+01	8.1E+00	2.5E+01	6.9E+03	NA	9.3E+01	NA	NA	NA	NA	NA	NA
U_{234}	6.1E+01	2.9E+02	6.2E+00	6.8E+01	6.1E+04	7.5E+03	8.1E+04	1.1E+05	NA	1.5E+03	2.8E+06	3.9E+05	5.3E+03	5.9E+04	NA	NA
U_{235236}	5.1E+00	2.4E+01	5.2E−01	5.6E+00	5.1E+03	6.3E+02	6.8E+03	9.4E+03	NA	1.3E+02	1.3E+05	1.8E+04	2.4E+02	2.7E+03	NA	NA
U_{238+2d}	6.7E+01	3.2E+02	6.8E+00	7.5E+01	7.8E+04	9.5E+03	1.0E+05	1.4E+05	NA	1.9E+03	2.7E+06	3.8E+05	5.1E+03	5.8E+04	NA	NA
Rn_{222+4d}	1.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.5E−10	2.2E−09	1.7E−09	1.8E−10	1.3E−06	2.8E−06	3.1E−07	1.6E−06	1.3E−08	NA	1.6E−05	3.2E−06	1.2E−06	1.3E−07	NA	3.8E−08
beryllium	3.8E−11	2.3E−10	9.9E−11	3.2E−13	3.5E−08	6.2E−08	2.0E−10	1.7E−07	1.4E−08	NA	7.0E−11	1.3E−11	2.0E−12	6.6E−15	NA	1.7E−13
cadmium	1.5E−10	1.3E−08	3.4E−09	2.2E−08	1.6E−05	4.2E−06	2.8E−05	7.6E−07	6.2E−08	NA	NA	NA	NA	NA	NA	NA
chromium vi	7.3E−10	6.1E−09	9.5E−09	9.4E−09	2.4E−06	6.8E−06	6.8E−06	3.9E−06	3.2E−07	NA	5.0E−07	1.3E−07	6.6E−08	6.6E−08	NA	2.4E−09
nickel	8.2E−10	3.5E−08	3.1E−08	1.9E−08	3.0E−05	2.8E−05	1.7E−05	3.7E−06	1.5E−08	NA	NA	NA	NA	NA	NA	NA
benzene	3.5E−16	2.9E−15	1.1E−18	1.3E−18	1.2E−07	5.0E−11	5.8E−11	3.8E−10	1.6E−12	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	4.0E−13	1.4E−12	2.4E−13	4.9E−13	1.4E−07	5.7E−08	1.2E−07	4.1E−08	1.4E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.6E−13	2.6E−12	2.6E−14	3.0E−14	1.1E−06	1.2E−08	1.4E−08	2.2E−08	5.3E−08	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E−15	1.5E−14	3.1E−18	3.8E−18	4.9E−07	1.3E−10	1.6E−10	1.3E−09	3.3E−09	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.7E−07	6.4E−11	8.0E−11	5.8E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	2.7E−09	1.0E−12	1.2E−12	8.2E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E−13	1.4E−12	2.5E−17	4.5E−17	2.1E−06	5.2E−11	9.5E−11	2.6E−09	6.4E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.2E−13	1.9E−12	1.2E−14	1.5E−14	2.9E−06	2.4E−08	3.1E−08	6.0E−08	1.5E−07	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	6.9E−15	4.2E−14	1.9E−18	2.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E−07	6.9E−07	4.6E−09	5.3E−09	1.8E−07	1.5E−09	1.7E−09	3.2E−09	1.0E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.1E−07	2.4E−06	1.7E−09	2.0E−09	6.5E−07	5.3E−10	6.2E−10	3.0E−09	7.4E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E−12	1.0E−11	1.2E−11	1.4E−11	5.6E−07	1.2E−06	1.4E−06	2.0E−07	4.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.2E−12	1.1E−11	3.5E−11	4.0E−11	2.6E−07	2.0E−06	2.3E−06	1.6E−07	4.0E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.3E−12	1.1E−11	3.7E−11	4.3E−11	2.7E−07	2.2E−06	2.5E−06	1.8E−07	4.3E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.9E−12	9.1E−12	1.7E−10	2.0E−10	8.2E−08	6.2E−06	7.2E−06	1.4E−07	3.4E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	2.1E−12	1.0E−11	1.2E−11	1.4E−11	5.2E−07	1.2E−06	1.3E−06	1.8E−07	4.5E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.6E−13	3.2E−12	5.6E−11	6.5E−11	3.0E−08	2.3E−06	2.6E−06	5.1E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.5E−12	7.1E−12	6.8E−11	7.9E−11	1.1E−07	3.7E−06	4.3E−06	1.3E−07	3.3E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.2E−12	7.4E−11	4.0E−10	4.6E−10	5.7E−07	3.6E−06	4.1E−06	3.3E−07	1.6E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	4.2E−14	3.2E−13	3.2E−11	3.7E−11	3.1E−08	6.4E−06	7.3E−06	7.8E−08	3.8E−08	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	7.9E−15	1.0E−13	1.3E−12	1.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	9.4E−15	4.8E−14	6.5E−14	7.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E−15	1.0E−14	8.9E−15	1.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.9E−15	1.5E−14	1.3E−15	1.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	1.7E−13	4.7E−10	6.1E−10	1.3E−12	3.2E−13	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.2E−16	1.4E−15	9.8E−13	1.3E−12	2.4E−13	7.4E−09	9.6E−09	4.5E−12	1.1E−12	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.8E−17	3.9E−16	4.1E−13	5.4E−13	2.2E−13	1.3E−08	1.7E−08	5.3E−12	1.3E−12	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–31b
INTAKES FOR CARCINOGENS FOR CT ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	4.9E−03	2.9E−02	9.6E−02	1.2E−01	8.1E+02	6.4E+03	8.2E+03	2.0E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.3E−03	7.1E−03	1.2E−04	3.9E−05	2.8E+02	2.3E+01	7.5E+00	2.1E+02	NA	2.8E+00	7.0E+00	1.2E+00	1.1E−02	3.7E−03	NA	NA
Pu_{238}	3.0E−02	1.4E−01	9.5E−06	6.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	7.4E−03	3.5E−02	6.0E−06	4.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.0E+00	5.7E+00	5.9E−01	3.8E+00	NA	NA	NA	NA	NA	NA	9.6E+03	1.6E+03	7.0E+01	4.6E+02	NA	NA
Ru_{106}	5.7E−03	2.6E−02	4.8E−03	5.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.6E−03	6.4E−02	1.1E−02	1.9E−01	1.2E+04	4.9E+03	8.9E+04	3.6E+02	NA	4.9E+00	4.0E−01	9.6E−02	9.2E−03	1.7E−01	NA	NA
Tc_{99}	6.4E−02	3.3E−01	4.9E−01	2.1E+00	8.4E+04	6.0E+05	2.6E+06	4.1E+02	NA	5.6E+00	3.6E+05	5.6E+04	5.2E+04	2.3E+05	NA	NA
Th_{230}	1.1E+00	5.3E+00	1.2E−02	3.8E−02	5.2E+00	5.3E−01	1.6E+00	4.5E+02	NA	6.1E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.2E−01	5.7E−01	1.3E−03	4.1E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.2E+00	1.5E+01	3.2E−01	3.5E+00	5.6E+02	6.8E+01	7.5E+02	1.0E+03	NA	1.4E+01	6.4E+03	8.9E+02	1.2E+01	1.4E+02	NA	NA
U_{235236}	2.8E−01	1.3E+00	2.9E−02	3.1E−01	9.8E+01	1.2E+01	1.3E+02	1.8E+02	NA	2.4E+00	2.9E+02	4.1E+01	5.6E−01	6.3E+00	NA	NA
U_{238+2d}	3.9E+00	1.8E+01	3.9E−01	4.3E+00	7.1E+02	8.7E+01	9.5E+02	1.3E+03	NA	1.8E+01	6.3E+03	8.7E+02	1.2E+01	1.3E+02	NA	NA
Rn_{222+4d}	2.6E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.1E−11	5.9E−10	4.3E−10	4.7E−11	NA	NA	NA	NA	NA	NA	2.2E−06	4.5E−07	1.7E−07	1.8E−08	NA	5.3E−09
beryllium	9.6E−12	5.6E−11	2.5E−11	8.1E−14	4.7E−08	8.3E−08	2.7E−10	2.3E−07	1.9E−08	NA	6.4E−22	1.2E−22	1.8E−23	6.0E−26	NA	1.5E−24
cadmium	5.3E−11	4.7E−09	1.2E−09	8.1E−09	5.0E−06	1.4E−06	9.0E−06	2.4E−07	2.0E−08	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.8E−10	1.5E−09	2.3E−09	2.3E−09	1.3E−06	3.5E−06	3.5E−06	2.0E−06	1.7E−07	NA	9.7E−09	2.6E−09	1.3E−09	1.3E−09	NA	4.6E−11
nickel	2.4E−10	1.0E−08	9.1E−09	5.5E−09	2.0E−05	1.8E−05	1.1E−05	2.4E−06	1.0E−08	NA	NA	NA	NA	NA	NA	NA
benzene	1.2E−16	1.0E−15	3.7E−19	4.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	9.6E−14	3.5E−13	5.8E−14	1.2E−13	3.0E−07	1.2E−07	2.4E−07	8.5E−08	2.8E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.2E−14	1.9E−13	1.9E−15	2.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E−16	3.2E−15	6.6E−19	8.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E−14	8.7E−14	1.6E−18	2.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	7.7E−14	3.5E−13	2.1E−15	2.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.3E−15	1.4E−14	6.3E−19	7.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.3E−07	3.3E−06	2.2E−08	2.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.0E−06	1.1E−05	8.1E−09	9.4E−09	1.2E−07	1.0E−10	1.2E−10	5.7E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.5E−13	1.2E−12	1.5E−12	1.7E−12	2.0E−08	4.3E−08	5.0E−08	6.9E−09	1.7E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E−13	1.5E−12	4.7E−12	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.7E−13	1.8E−12	6.0E−12	6.9E−12	1.2E−08	1.0E−07	1.2E−07	8.0E−09	2.0E−08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.2E−13	1.6E−12	2.9E−11	3.4E−11	5.1E−09	3.9E−07	4.4E−07	8.6E−09	2.1E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	3.2E−13	1.6E−12	1.9E−12	2.2E−12	3.1E−08	7.0E−08	8.0E−08	1.1E−08	2.7E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.6E−14	4.5E−13	8.1E−12	9.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.4E−13	1.1E−12	1.1E−11	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	3.0E−13	5.2E−12	2.8E−11	3.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.4E−14	1.1E−13	1.1E−11	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.5E−15	1.9E−14	2.5E−13	2.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	5.3E−16	2.7E−15	3.6E−15	4.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.1E−16	1.5E−15	1.2E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E−16	1.2E−15	1.1E−16	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.2E−17	2.7E−16	1.9E−13	2.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.0E−17	1.3E−16	1.4E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-31c
INTAKES FOR CARCINOGENS FOR CT ON-PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.8E-02	1.1E-01	3.6E-01	4.6E-01	8.4E+02	6.7E+03	8.5E+03	2.1E+02	NA	2.8E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.2E-03	2.3E-02	3.9E-04	1.3E-04	NA	NA	NA	NA	NA	NA	5.8E+01	9.7E+00	9.3E-02	3.1E-02	NA	NA
Pu_{238}	1.0E-01	4.8E-01	3.2E-05	2.3E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	2.2E-02	1.1E-01	1.8E-05	1.3E-05	4.1E-01	6.3E-03	4.6E-03	6.7E+01	NA	9.0E-01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.4E+01	7.6E+01	7.8E+00	5.1E+01	2.2E+01	1.2E+01	8.1E+01	1.1E+02	NA	1.5E+00	9.8E+03	1.6E+03	7.1E+01	4.7E+02	NA	NA
Ru_{106}	8.1E-03	3.7E-02	6.9E-03	7.8E-06	1.7E+03	1.8E+03	2.0E+00	6.5E+02	NA	8.7E+00	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.8E-02	4.4E-01	7.3E-02	1.3E+00	2.3E+04	9.0E+03	1.6E+05	6.6E+02	NA	9.0E+00	2.4E+01	5.7E+00	5.4E-01	9.9E+00	NA	NA
Tc_{99}	5.8E-01	3.0E+00	4.4E+00	1.9E+01	NA	NA	NA	NA	NA	NA	3.1E+06	4.9E+05	4.5E+05	2.0E+06	NA	NA
Th_{230}	3.0E+01	1.4E+02	3.3E-01	1.0E+00	5.8E+00	5.8E-01	1.8E+00	5.0E+02	NA	6.7E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	9.4E-01	4.5E+00	1.1E-02	3.2E-02	6.8E+01	6.9E+00	2.1E+01	5.9E+03	NA	7.9E+01	NA	NA	NA	NA	NA	NA
U_{234}	1.9E+01	8.9E+01	1.9E+00	2.1E+01	2.9E+02	3.6E+01	3.9E+02	5.4E+02	NA	7.3E+00	1.5E+06	2.0E+05	2.8E+03	3.2E+04	NA	NA
$U_{235/236}$	1.4E+00	6.6E+00	1.4E-01	1.5E+00	1.7E+03	2.1E+02	2.3E+03	3.2E+03	NA	4.3E+01	6.7E+04	9.3E+03	1.3E+02	1.4E+03	NA	NA
U_{238+2d}	1.8E+01	8.8E+01	1.9E+00	2.0E+01	3.8E+02	4.6E+01	5.0E+02	6.9E+02	NA	9.3E+00	1.4E+06	2.0E+05	2.7E+03	3.1E+04	NA	NA
Rn_{222+4d}	9.7E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.7E-10	1.1E-09	8.2E-10	8.9E-11	NA	NA	NA	NA	NA	NA	7.6E-06	1.5E-06	5.7E-07	6.2E-08	NA	1.8E-08
beryllium	2.1E-11	1.3E-10	5.5E-11	1.8E-13	2.9E-08	5.0E-08	1.6E-10	1.4E-07	1.1E-08	NA	2.6E-15	4.7E-16	7.5E-17	2.5E-19	NA	6.3E-18
cadmium	8.8E-11	7.9E-09	2.0E-09	1.4E-08	7.0E-06	1.9E-06	1.3E-05	3.4E-07	2.8E-08	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.8E-10	3.2E-09	4.9E-09	4.9E-09	1.4E-06	3.9E-06	3.9E-06	2.2E-06	1.8E-07	NA	2.1E-07	5.8E-08	2.8E-08	2.8E-08	NA	1.0E-09
nickel	4.4E-10	1.9E-08	1.7E-08	1.0E-08	2.4E-05	2.2E-05	1.4E-05	2.9E-06	1.2E-08	NA	NA	NA	NA	NA	NA	NA
benzene	5.2E-16	4.4E-15	1.6E-18	1.9E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.8E-13	1.4E-12	2.3E-13	4.7E-13	4.8E-08	1.9E-08	3.9E-08	1.4E-08	4.5E-10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.4E-13	2.3E-12	2.3E-14	2.7E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.5E-15	1.6E-14	3.2E-18	3.9E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.9E-13	1.7E-12	3.0E-17	5.5E-17	3.8E-06	9.4E-11	1.7E-10	4.7E-09	1.2E-08	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.2E-13	5.3E-13	3.2E-15	4.1E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.0E-14	6.1E-14	2.7E-18	3.4E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E-07	7.5E-07	5.0E-09	5.8E-09	1.4E-07	1.2E-09	1.4E-09	2.5E-09	8.3E-09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.4E-07	2.6E-06	1.9E-09	2.2E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.5E-12	7.3E-12	8.5E-12	9.9E-12	1.5E-07	3.3E-07	3.8E-07	5.3E-08	1.3E-07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E-12	8.6E-12	2.8E-11	3.2E-11	6.5E-08	5.0E-07	5.8E-07	4.1E-08	1.0E-07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.7E-12	8.3E-12	2.8E-11	3.2E-11	2.2E-07	1.8E-06	2.1E-06	1.4E-07	3.5E-07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E-12	8.8E-12	1.7E-10	1.9E-10	1.5E-08	1.1E-06	1.3E-06	2.5E-08	6.2E-08	NA	NA	NA	NA	NA	NA	NA
chrysene	1.4E-12	6.9E-12	8.3E-12	9.5E-12	2.4E-07	5.3E-07	6.1E-07	8.4E-08	2.1E-07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.0E-13	2.9E-12	5.1E-11	5.9E-11	3.4E-09	2.5E-07	2.9E-07	5.7E-09	1.4E-08	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.1E-12	5.4E-12	5.2E-11	6.0E-11	1.7E-08	5.7E-07	6.5E-07	2.1E-08	5.1E-08	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	2.2E-12	3.9E-11	2.1E-10	2.4E-10	3.7E-09	2.3E-08	2.7E-08	2.1E-09	1.0E-09	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	6.4E-14	4.9E-13	4.9E-11	5.7E-11	7.6E-09	1.6E-06	1.8E-06	1.9E-08	9.5E-09	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	5.8E-15	7.5E-14	9.6E-13	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.9E-15	9.7E-15	1.3E-14	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.6E-16	2.2E-15	1.9E-15	2.2E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.9E-16	3.0E-15	2.7E-16	3.1E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.3E-16	5.5E-16	3.9E-13	5.1E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.3E-16	5.7E-16	6.1E-13	7.9E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–31d
INTAKES FOR CARCINOGENS FOR CT ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	8.1E−03	4.9E−02	1.6E−01	2.0E−01	5.4E+02	4.3E+03	5.4E+03	1.3E+02	NA	1.8E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.7E−03	1.5E−02	2.4E−04	8.0E−05	NA	NA	NA	NA	NA	NA	1.8E+03	3.0E+02	2.9E+00	9.6E−01	NA	NA
Pu_{238}	1.4E−01	6.4E−01	4.3E−05	3.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.6E−02	7.7E−02	1.3E−05	9.6E−06	9.5E−01	1.5E−02	1.1E−02	1.5E+02	NA	2.1E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.1E+00	1.1E+01	1.2E+00	7.7E+00	NA	NA	NA	NA	NA	NA	4.7E+04	7.9E+03	3.4E+02	2.3E+03	NA	NA
Ru_{106}	4.0E−03	1.9E−02	3.4E−03	3.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.1E−02	1.5E−01	2.6E−02	4.7E−01	1.9E+04	7.4E+03	1.3E+05	5.5E+02	NA	7.4E+00	4.0E+04	9.5E+03	9.1E+02	1.7E+04	NA	NA
Tc_{99}	1.7E−01	8.9E−01	1.3E+00	5.6E+00	NA	NA	NA	NA	NA	NA	2.0E+07	3.1E+06	2.9E+06	1.3E+07	NA	NA
Th_{230}	7.9E+00	3.8E+01	8.8E−02	2.7E−01	5.3E+00	5.4E−01	1.6E+00	4.6E+02	NA	6.2E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.1E−01	2.5E+00	5.7E−03	1.7E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.5E+01	6.9E+01	1.5E+00	1.6E+01	9.4E+02	1.1E+02	1.3E+03	1.7E+03	NA	2.3E+01	9.1E+06	1.3E+06	1.7E+04	2.0E+05	NA	NA
U_{235236}	1.1E+00	5.3E+00	1.1E−01	1.2E+00	1.1E+02	1.4E+01	1.5E+02	2.1E+02	NA	2.8E+00	4.2E+05	5.8E+04	7.9E+02	8.9E+03	NA	NA
U_{238+2d}	1.5E+01	7.3E+01	1.6E+00	1.7E+01	6.6E+02	8.0E+01	8.7E+02	1.2E+03	NA	1.6E+01	8.9E+06	1.2E+06	1.7E+04	1.9E+05	NA	NA
Rn_{222+4d}	1.2E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	9.6E−11	6.2E−10	4.6E−10	5.0E−11	NA	NA	NA	NA	NA	NA	9.4E−06	1.9E−06	6.9E−07	7.6E−08	NA	2.2E−08
beryllium	1.1E−11	6.8E−11	3.0E−11	9.7E−14	4.1E−08	7.3E−08	2.4E−10	2.0E−07	1.6E−08	NA	2.0E−07	3.5E−08	5.6E−09	1.8E−11	NA	4.7E−10
cadmium	3.7E−11	3.3E−09	8.6E−10	5.7E−09	8.3E−06	2.2E−06	1.5E−05	4.0E−07	3.3E−08	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.8E−10	1.5E−09	2.4E−09	2.4E−09	1.2E−06	3.3E−06	3.3E−06	1.9E−06	1.6E−07	NA	1.8E−05	4.8E−06	2.3E−06	2.3E−06	NA	8.4E−08
nickel	2.1E−10	8.9E−09	7.9E−09	4.8E−09	1.8E−05	1.6E−05	9.9E−06	2.2E−06	8.8E−09	NA	NA	NA	NA	NA	NA	NA
benzene	6.2E−17	5.3E−16	1.9E−19	2.3E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.0E−13	3.6E−13	6.1E−14	1.2E−13	2.6E−08	1.0E−08	2.1E−08	7.3E−09	2.4E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	3.5E−14	5.6E−13	5.7E−15	6.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.5E−16	2.7E−15	5.6E−19	7.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.2E−14	2.7E−13	4.8E−18	8.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	3.6E−14	1.7E−13	1.0E−15	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.2E−15	7.6E−15	3.4E−19	4.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.9E−08	1.8E−07	1.2E−09	1.4E−09	2.5E−08	2.0E−10	2.4E−10	4.3E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.7E−08	6.3E−07	4.6E−10	5.4E−10	6.2E−08	5.1E−11	5.9E−11	2.9E−10	7.1E−10	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.6E−13	1.8E−12	2.1E−12	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.0E−13	1.9E−12	6.2E−12	7.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.1E−13	2.0E−12	6.6E−12	7.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.4E−13	1.7E−12	3.2E−11	3.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.6E−13	1.8E−12	2.2E−12	2.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E−13	5.7E−13	1.0E−11	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.6E−13	1.3E−12	1.2E−11	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	8.6E−13	1.5E−11	8.1E−11	9.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	7.7E−15	5.8E−14	5.9E−12	6.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.4E−15	1.9E−14	2.4E−13	2.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.9E−15	9.8E−15	1.3E−14	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.6E−16	1.3E−15	1.1E−15	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.8E−16	2.4E−15	2.2E−16	2.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.0E−17	1.3E−16	9.4E−14	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.6E−17	6.9E−17	7.4E−14	9.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-31e
INTAKES FOR CARCINOGENS FOR CT ON-PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	8.3E-03	5.0E-02	1.6E-01	2.1E-01	8.1E+02	6.4E+03	8.2E+03	2.0E+02	NA	2.7E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.2E-03	1.7E-02	2.9E-04	9.6E-05	NA	NA	NA	NA	NA	NA	1.4E+03	2.3E+02	2.2E+00	7.5E-01	NA	NA
Pu_{238}	1.6E-01	7.6E-01	5.2E-05	3.8E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.9E-02	8.9E-02	1.5E-05	1.1E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.7E+00	9.5E+00	9.8E-01	6.4E+00	NA	NA	NA	NA	NA	NA	4.0E+04	6.7E+03	2.9E+02	1.9E+03	NA	NA
Ru_{106}	6.6E-03	3.0E-02	5.6E-03	6.3E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.0E-02	1.5E-01	2.5E-02	4.5E-01	1.4E+04	5.6E+03	1.0E+05	4.1E+02	NA	5.6E+00	2.7E+04	6.3E+03	6.0E+02	1.1E+04	NA	NA
Tc_{99}	1.0E-01	5.4E-01	7.9E-01	3.4E+00	6.9E+04	4.9E+05	2.1E+06	3.3E+02	NA	4.5E+00	1.4E+07	2.2E+06	2.1E+06	9.0E+06	NA	NA
Th_{230}	8.1E+00	3.9E+01	9.1E-02	2.7E-01	6.9E+00	6.9E-01	2.1E+00	5.9E+02	NA	8.0E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.4E-01	2.1E+00	4.9E-03	1.5E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.5E+01	7.3E+01	1.6E+00	1.7E+01	2.7E+03	3.3E+02	3.6E+03	4.9E+03	NA	6.7E+01	6.3E+06	8.8E+05	1.2E+04	1.4E+05	NA	NA
$U_{235,26}$	1.3E+00	6.1E+00	1.3E-01	1.4E+00	3.4E+02	4.2E+01	4.6E+02	6.3E+02	NA	8.5E+00	2.9E+05	4.0E+04	5.5E+02	6.2E+03	NA	NA
U_{238+2d}	1.7E+01	8.2E+01	1.7E+00	1.9E+01	5.1E+03	6.2E+02	6.7E+03	9.2E+03	NA	1.3E+02	6.2E+06	8.6E+05	1.2E+04	1.3E+05	NA	NA
Rn_{222+4d}	9.0E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.1E-10	7.1E-10	5.2E-10	5.7E-11	NA	NA	NA	NA	NA	NA	8.5E-06	1.7E-06	6.3E-07	6.9E-08	NA	2.0E-08
beryllium	1.1E-11	6.8E-11	3.0E-11	9.7E-14	5.0E-08	8.8E-08	2.9E-10	2.4E-07	2.0E-08	NA	1.8E-07	3.3E-08	5.2E-09	1.7E-11	NA	4.4E-10
cadmium	3.7E-11	3.3E-09	8.6E-10	5.7E-09	3.8E-06	1.0E-06	6.9E-06	1.9E-07	1.5E-08	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.7E-10	1.5E-09	2.3E-09	2.2E-09	NA	NA	NA	NA	NA	NA	1.4E-05	3.7E-06	1.8E-06	1.8E-06	NA	6.5E-08
nickel	2.1E-10	8.9E-09	7.9E-09	4.8E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	5.3E-17	4.5E-16	1.6E-19	1.9E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-13	5.9E-13	9.9E-14	2.0E-13	3.5E-07	1.4E-07	2.8E-07	1.0E-07	3.3E-09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.4E-14	3.8E-13	3.9E-15	4.4E-15	5.0E-08	5.5E-10	6.3E-10	1.0E-09	2.5E-09	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.0E-16	1.8E-15	3.8E-19	4.7E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E-14	1.9E-13	3.4E-18	6.2E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.2E-14	2.0E-13	1.2E-15	1.5E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.0E-15	6.1E-15	2.7E-19	3.4E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E-08	2.2E-07	1.5E-09	1.7E-09	1.6E-08	1.4E-10	1.6E-10	2.9E-10	9.4E-10	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.2E-08	7.9E-07	5.8E-10	6.7E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.4E-13	1.7E-12	2.0E-12	2.3E-12	2.7E-08	6.0E-08	7.0E-08	9.6E-09	2.4E-08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.7E-13	1.8E-12	5.8E-12	6.7E-12	1.4E-08	1.1E-07	1.2E-07	8.8E-09	2.2E-08	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.9E-13	1.9E-12	6.2E-12	7.2E-12	1.5E-08	1.2E-07	1.4E-07	9.5E-09	2.3E-08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.0E-13	1.4E-12	2.7E-11	3.1E-11	6.5E-09	4.9E-07	5.7E-07	1.1E-08	2.7E-08	NA	NA	NA	NA	NA	NA	NA
chrysene	3.7E-13	1.9E-12	2.3E-12	2.6E-12	3.6E-08	8.0E-08	9.2E-08	1.3E-08	3.1E-08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.1E-13	5.0E-13	8.9E-12	1.0E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.6E-13	1.2E-12	1.2E-11	1.4E-11	6.0E-09	2.0E-07	2.3E-07	7.2E-09	1.8E-08	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	8.1E-13	1.4E-11	7.7E-11	8.8E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	6.2E-15	4.7E-14	4.8E-12	5.5E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-15	1.7E-14	2.2E-13	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	1.9E-15	9.8E-15	1.3E-14	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.9E-16	1.4E-15	1.2E-15	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.3E-16	2.7E-15	2.4E-16	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.4E-17	1.5E-16	1.0E-13	1.4E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E-17	5.5E-17	5.9E-14	7.6E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA -- Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

DRAFT

TABLE A.VI-31f
INTAKES FOR CARCINOGENS FOR CT ON-PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	7.5E-03	4.5E-02	1.5E-01	1.9E-01	1.2E+03	9.1E+03	1.2E+04	2.8E+02	NA	3.8E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.9E-03	1.6E-02	2.7E-04	8.8E-05	3.8E+02	3.0E+01	1.0E+01	2.8E+02	NA	3.8E+00	7.4E+02	1.2E+02	1.2E+00	3.9E-01	NA	NA
Pu_{238}	4.1E-02	1.9E-01	1.3E-05	9.5E-06	4.7E-01	7.3E-03	5.3E-03	7.7E+01	NA	1.0E+00	NA	NA	NA	NA	NA	NA
Pu_{239240}	9.4E-03	4.5E-02	7.6E-06	5.6E-06	4.7E-01	7.3E-03	5.3E-03	7.7E+01	NA	1.0E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.1E+00	1.2E+01	1.2E+00	8.0E+00	1.8E+03	1.0E+03	6.6E+03	8.9E+03	NA	1.2E+02	3.5E+04	5.9E+03	2.6E+02	1.7E+03	NA	NA
Ru_{106}	1.9E-02	8.7E-02	1.6E-02	1.8E-05	2.1E+03	2.2E+03	2.5E+00	7.9E+02	NA	1.1E+01	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.5E-02	1.2E-01	1.9E-02	3.5E-01	1.3E+04	5.2E+03	9.5E+04	3.9E+02	NA	5.2E+00	9.9E+03	2.3E+03	2.2E+02	4.1E+03	NA	NA
Tc_{99}	7.8E-02	4.1E-01	6.0E-01	2.5E+00	6.3E+04	4.5E+05	1.9E+06	3.1E+02	NA	4.2E+00	9.7E+05	1.5E+05	1.4E+05	6.1E+05	NA	NA
Th_{230}	2.8E+00	1.3E+01	3.1E-02	9.5E-02	1.1E+02	1.1E+01	3.3E+01	9.2E+03	NA	1.2E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.8E-01	8.6E-01	2.0E-03	6.1E-03	7.6E+00	7.7E-01	2.3E+00	6.5E+02	NA	8.8E+00	NA	NA	NA	NA	NA	NA
U_{234}	4.1E+00	2.0E+01	4.2E-01	4.6E+00	4.6E+03	5.6E+02	6.1E+03	8.4E+03	NA	1.1E+02	1.7E+05	2.4E+04	3.3E+02	3.7E+03	NA	NA
U_{235236}	4.0E-01	1.9E+00	4.1E-02	4.5E-01	2.0E+02	2.4E+01	2.6E+02	3.6E+02	NA	4.9E+00	7.8E+03	1.1E+03	1.5E+01	1.7E+02	NA	NA
U_{238+2d}	4.9E+00	2.3E+01	5.0E-01	5.4E+00	1.0E+04	1.2E+03	1.3E+04	1.8E+04	NA	2.5E+02	1.7E+05	2.3E+04	3.2E+02	3.6E+03	NA	NA
Rn_{222+4d}	2.8E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.4E-10	2.2E-09	1.6E-09	1.7E-10	1.2E-06	2.6E-06	2.8E-07	1.4E-06	1.2E-08	NA	2.8E-06	5.6E-07	2.1E-07	2.3E-08	NA	6.7E-09
beryllium	1.7E-11	1.0E-10	4.5E-11	1.5E-13	2.2E-08	3.8E-08	1.3E-10	1.1E-07	8.7E-09	NA	4.2E-08	7.6E-09	1.2E-09	4.0E-12	NA	1.0E-10
cadmium	1.1E-10	9.5E-09	2.5E-09	1.6E-08	1.7E-05	4.6E-06	3.1E-05	8.3E-07	6.8E-08	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.4E-10	2.9E-09	4.4E-09	4.4E-09	1.4E-06	3.8E-06	3.8E-06	2.2E-06	1.8E-07	NA	2.0E-06	5.5E-07	2.7E-07	2.7E-07	NA	9.6E-09
nickel	4.6E-10	2.0E-08	1.8E-08	1.1E-08	2.6E-05	2.4E-05	1.5E-05	3.2E-06	1.3E-08	NA	NA	NA	NA	NA	NA	NA
benzene	7.2E-17	6.1E-16	2.2E-19	2.6E-19	1.3E-07	5.7E-11	6.6E-11	4.3E-10	1.8E-12	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	9.1E-14	3.3E-13	5.5E-14	1.1E-13	1.9E-06	7.3E-07	1.5E-06	5.3E-07	1.7E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.4E-14	3.8E-13	3.9E-15	4.4E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.6E-16	2.2E-15	4.5E-19	5.6E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.2E-14	2.7E-13	4.8E-18	8.9E-18	3.2E-06	8.0E-11	1.5E-10	4.0E-09	9.9E-09	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.4E-13	6.7E-13	4.0E-15	5.1E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.4E-15	8.7E-15	3.9E-19	4.8E-19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E-07	1.5E-06	1.0E-08	1.2E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E-07	5.2E-06	3.8E-09	4.4E-09	1.9E-07	1.5E-10	1.8E-10	8.6E-10	2.1E-09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E-13	1.6E-12	1.8E-12	2.1E-12	5.3E-07	1.2E-06	1.4E-06	1.9E-07	4.6E-07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.6E-13	1.7E-12	5.6E-12	6.4E-12	2.2E-07	1.7E-06	2.0E-06	1.4E-07	3.5E-07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.6E-13	1.7E-12	5.7E-12	6.6E-12	5.3E-07	4.3E-06	5.0E-06	3.4E-07	8.5E-07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.4E-13	1.7E-12	3.2E-11	3.6E-11	5.2E-09	3.9E-07	4.5E-07	8.8E-09	2.2E-08	NA	NA	NA	NA	NA	NA	NA
chrysene	3.1E-13	1.6E-12	1.9E-12	2.2E-12	4.5E-07	1.0E-06	1.1E-06	1.6E-07	3.9E-07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E-13	4.8E-13	8.5E-12	9.8E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.3E-13	1.1E-12	1.0E-11	1.2E-11	4.8E-09	1.6E-07	1.8E-07	5.7E-09	1.4E-08	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	4.3E-13	7.6E-12	4.1E-11	4.7E-11	3.5E-09	2.2E-08	2.5E-08	2.0E-09	9.9E-10	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	8.6E-15	6.6E-14	6.7E-12	7.7E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.3E-15	1.7E-14	2.1E-13	2.5E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	7.2E-16	3.7E-15	5.0E-15	5.7E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.7E-16	2.7E-15	2.3E-15	2.7E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.2E-16	2.1E-15	1.9E-16	2.2E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-16	4.6E-16	3.3E-13	4.2E-13	6.8E-12	2.1E-07	2.8E-07	1.3E-10	3.2E-11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E-17	8.0E-17	8.6E-14	1.1E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–31g
INTAKES FOR CARCINOGENS FOR CT ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	8.6E−03	5.2E−02	1.7E−01	2.2E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.8E−03	1.6E−02	2.6E−04	8.6E−05	NA	NA	NA	NA	NA	NA	1.8E+03	3.0E+02	2.9E+00	9.6E−01	NA	NA
Pu_{238}	1.3E−01	6.0E−01	4.1E−05	3.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.6E−02	7.7E−02	1.3E−05	9.6E−06	2.7E+00	4.1E−02	3.0E−02	4.4E+02	NA	5.9E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.7E+04	7.9E+03	3.4E+02	2.3E+03	NA	NA
Ru_{106}	4.5E−03	2.1E−02	3.8E−03	4.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.7E−02	2.0E−01	3.3E−02	6.0E−01	1.5E+04	5.8E+03	1.1E+05	4.3E+02	NA	5.8E+00	4.0E+04	9.5E+03	9.1E+02	1.7E+04	NA	NA
Tc_{99}	3.2E−01	1.7E+00	2.4E+00	1.0E+01	NA	NA	NA	NA	NA	NA	2.0E+07	3.1E+06	2.9E+06	1.3E+07	NA	NA
Th_{230}	1.0E+01	4.9E+01	1.1E−01	3.5E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.5E+01	7.3E+01	1.6E+00	1.7E+01	5.1E+02	6.2E+01	6.8E+02	9.3E+02	NA	1.3E+01	9.1E+06	1.3E+06	1.7E+04	2.0E+05	NA	NA
$U_{235/236}$	1.2E+00	5.7E+00	1.2E−01	1.3E+00	1.1E+02	1.4E+01	1.5E+02	2.1E+02	NA	2.8E+00	4.2E+05	5.8E+04	7.9E+02	8.9E+03	NA	NA
U_{238+2d}	1.5E+01	7.3E+01	1.6E+00	1.7E+01	3.8E+02	4.6E+01	5.0E+02	6.9E+02	NA	9.3E+00	8.9E+06	1.2E+06	1.7E+04	1.9E+05	NA	NA
Rn_{222+4d}	1.7E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.4E−10	9.3E−10	6.8E−10	7.5E−11	1.6E−06	3.4E−06	3.8E−07	1.9E−06	1.6E−08	NA	9.4E−06	1.9E−06	6.9E−07	7.6E−08	NA	2.2E−08
beryllium	1.5E−11	9.0E−11	4.0E−11	1.3E−13	2.2E−08	3.8E−08	1.2E−10	1.0E−07	8.6E−09	NA	2.0E−07	3.5E−08	5.6E−09	1.8E−11	NA	4.7E−10
cadmium	5.7E−11	5.2E−09	1.3E−09	8.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.7E−10	2.3E−09	3.6E−09	3.5E−09	3.8E−06	1.1E−05	1.1E−05	6.1E−06	5.0E−07	NA	1.8E−05	4.8E−06	2.3E−06	2.3E−06	NA	8.4E−08
nickel	3.0E−10	1.3E−08	1.1E−08	6.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	8.1E−17	6.9E−16	2.5E−19	3.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.1E−13	4.0E−13	6.7E−14	1.4E−13	3.1E−08	1.2E−08	2.5E−08	8.9E−09	2.9E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.8E−14	7.6E−13	7.7E−15	8.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E−16	3.2E−15	6.6E−19	8.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.1E−14	3.5E−13	6.3E−18	1.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	3.9E−14	1.8E−13	1.1E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.5E−15	9.3E−15	4.2E−19	5.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.1E−08	1.9E−07	1.3E−09	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.2E−08	6.9E−07	5.0E−10	5.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.7E−13	2.3E−12	7.3E−12	8.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.8E−13	2.3E−12	7.6E−12	8.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.2E−13	2.0E−12	3.9E−11	4.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.1E−13	2.1E−12	2.5E−12	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.5E−13	7.1E−13	1.3E−11	1.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.1E−13	1.5E−12	1.4E−11	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	8.6E−13	1.5E−11	8.1E−11	9.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	9.6E−15	7.3E−14	7.4E−12	8.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.5E−15	2.0E−14	2.5E−13	2.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.8E−15	9.1E−15	1.2E−14	1.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.6E−16	1.3E−15	1.1E−15	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.8E−16	2.4E−15	2.2E−16	2.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.4E−17	1.5E−16	1.0E−13	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.0E−17	8.6E−17	9.2E−14	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-32a
INTAKES FOR TOXICANTS FOR CT ON-PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.4E-10	1.5E-09	9.9E-15	1.1E-14	3.2E-03	2.4E-08	2.7E-08	9.6E-07	7.8E-08	NA	NA	NA	NA	NA	NA	NA
aluminum	2.7E-06	1.3E-05	NA	NA	NA	NA	NA	1.4E-02	1.1E-03	NA	NA	NA	NA	NA	NA	NA
antimony	6.1E-09	9.4E-08	6.3E-08	2.3E-08	1.1E-04	1.0E-04	3.6E-05	2.6E-05	2.2E-06	NA	4.7E-04	2.5E-04	8.4E-05	3.1E-05	NA	1.1E-06
arsenic	2.7E-09	1.7E-08	1.3E-08	1.4E-09	1.0E-05	2.2E-05	2.4E-06	1.2E-05	1.0E-07	NA	1.2E-04	2.5E-05	9.2E-06	1.0E-06	NA	2.9E-07
barium	4.9E-08	8.0E-07	1.2E-07	1.0E-06	5.3E-04	1.1E-04	9.6E-04	2.6E-04	2.1E-05	NA	NA	NA	NA	NA	NA	NA
beryllium	3.0E-10	1.8E-09	7.7E-10	2.5E-12	2.7E-07	4.8E-07	1.6E-09	1.3E-06	1.1E-07	NA	5.5E-10	9.9E-11	1.6E-11	5.1E-14	NA	1.3E-12
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.1E-09	1.0E-07	2.6E-08	1.7E-07	1.2E-04	3.3E-05	2.2E-04	5.9E-06	4.8E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	5.6E-09	4.8E-08	7.4E-08	7.3E-08	1.9E-05	5.3E-05	5.3E-05	3.1E-05	2.5E-06	NA	3.9E-06	1.0E-06	5.1E-07	5.1E-07	NA	1.8E-08
cobalt	2.8E-09	2.5E-08	1.6E-07	5.7E-08	1.3E-05	1.4E-04	5.3E-05	1.3E-05	1.1E-06	NA	NA	NA	NA	NA	NA	NA
copper	9.4E-09	4.8E-07	9.9E-07	5.4E-07	1.6E-03	3.5E-03	1.9E-03	4.8E-05	3.9E-07	NA	NA	NA	NA	NA	NA	NA
lead	1.1E-07	1.4E-06	2.3E-07	7.0E-07	1.7E-04	4.1E-05	1.2E-04	1.4E-04	1.1E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	7.1E-06	6.0E-05	4.9E-05	1.4E-04	3.4E-01	4.2E-01	1.2E+00	4.6E-03	3.8E-04	NA	5.2E+00	1.4E+00	6.7E-01	2.0E+00	NA	1.2E-02
manganese	2.6E-07	4.6E-06	9.8E-07	3.1E-06	4.4E-03	1.2E-03	3.8E-03	6.4E-04	5.3E-05	NA	3.1E-02	1.9E-02	2.0E-03	6.5E-03	NA	7.3E-05
mercury	1.6E-10	1.3E-09	9.3E-08	6.1E-10	2.0E-05	3.1E-03	2.0E-05	7.5E-07	3.1E-07	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.4E-09	3.0E-08	7.2E-08	6.6E-08	7.0E-05	2.4E-04	2.2E-04	8.5E-06	7.0E-07	NA	NA	NA	NA	NA	NA	NA
nickel	6.4E-09	2.8E-07	2.4E-07	1.5E-07	2.3E-04	2.2E-04	1.3E-04	2.9E-05	1.2E-07	NA	NA	NA	NA	NA	NA	NA
selenium	3.5E-10	7.6E-09	1.9E-08	1.8E-08	3.3E-06	9.2E-06	8.9E-06	9.7E-07	8.0E-08	NA	NA	NA	NA	NA	NA	NA
silver	2.4E-09	7.6E-08	1.1E-07	2.6E-06	7.3E-05	1.2E-04	2.9E-03	5.3E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	8.8E-11	4.4E-10	7.0E-09	1.3E-09	2.8E-08	5.2E-06	9.4E-07	5.1E-07	4.2E-08	NA	NA	NA	NA	NA	NA	NA
uranium-total	7.7E-07	3.7E-06	7.8E-08	8.5E-07	5.6E-04	6.9E-05	7.5E-04	1.0E-03	8.4E-05	NA	3.5E-02	4.9E-03	6.7E-05	7.6E-04	NA	8.4E-05
vanadium	6.8E-09	4.7E-08	3.4E-08	9.8E-10	1.3E-05	2.1E-05	6.2E-07	3.1E-05	2.5E-07	NA	NA	NA	NA	NA	NA	NA
zinc	3.7E-08	3.0E-05	6.7E-04	2.4E-04	1.9E-02	4.3E-01	1.6E-01	1.6E-04	1.3E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.1E-12	1.1E-11	1.9E-12	3.8E-12	1.1E-06	4.4E-07	9.0E-07	3.2E-07	1.1E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E-14	1.2E-13	2.4E-17	2.9E-17	3.8E-06	9.8E-10	1.2E-09	1.0E-08	2.5E-08	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	4.1E-06	3.9E-10	4.6E-10	5.7E-09	1.4E-08	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	1.4E-06	5.0E-10	6.2E-10	4.5E-09	1.1E-08	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.2E-05	7.6E-06	8.8E-06	3.0E-06	7.4E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E-12	1.1E-11	1.9E-16	3.5E-16	1.6E-05	4.0E-10	7.4E-10	2.0E-08	4.9E-08	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.2E-05	7.8E-06	9.0E-06	2.3E-06	5.7E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.2E-05	4.2E-06	4.9E-06	2.7E-06	6.6E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.5E-07	5.3E-06	3.6E-08	4.1E-08	1.4E-06	1.2E-08	1.4E-08	2.5E-08	8.1E-08	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	4.5E-06	4.2E-09	4.9E-09	2.3E-08	5.6E-08	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	6.1E-14	7.9E-13	1.0E-11	1.2E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.3E-14	1.1E-13	1.0E-14	1.2E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–32b
INTAKES FOR TOXICANTS FOR CT ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.9E−11	3.0E−10	2.0E−15	2.3E−15	2.0E−03	1.5E−08	1.7E−08	5.9E−07	4.9E−08	NA	NA	NA	NA	NA	NA	NA
aluminum	7.1E−07	3.3E−06	NA	NA	NA	NA	NA	1.1E−02	9.0E−04	NA	NA	NA	NA	NA	NA	NA
antimony	1.5E−09	2.3E−08	1.5E−08	5.5E−09	1.5E−05	1.4E−05	4.9E−06	3.6E−06	2.9E−07	NA	2.8E−06	1.4E−06	4.9E−07	1.8E−07	NA	6.6E−09
arsenic	7.1E−10	4.6E−09	3.4E−09	3.7E−10	NA	NA	NA	NA	NA	NA	1.7E−05	3.5E−06	1.3E−06	1.4E−07	NA	4.2E−08
barium	7.8E−09	1.3E−07	2.0E−08	1.7E−07	2.3E−04	4.9E−05	4.1E−04	1.1E−04	9.3E−06	NA	NA	NA	NA	NA	NA	NA
beryllium	7.4E−11	4.4E−10	1.9E−10	6.3E−13	3.7E−07	6.4E−07	2.1E−09	1.8E−06	1.5E−07	NA	5.0E−21	9.0E−22	1.4E−22	4.7E−25	NA	1.2E−23
boron	NA	NA	NA	NA	4.4E−03	9.2E−04	6.3E−03	1.6E−05	1.3E−06	NA	NA	NA	NA	NA	NA	NA
cadmium	4.1E−10	3.7E−08	9.6E−09	6.3E−08	3.9E−05	1.1E−05	7.0E−05	1.9E−06	1.6E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.4E−09	1.2E−08	1.8E−08	1.8E−08	9.8E−06	2.8E−05	2.7E−05	1.6E−05	1.3E−06	NA	7.6E−08	2.1E−08	1.0E−08	1.0E−08	NA	3.6E−10
cobalt	8.2E−10	7.2E−09	4.6E−08	1.7E−08	1.3E−05	1.5E−04	5.3E−05	1.3E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
copper	1.9E−09	1.0E−07	2.0E−07	1.1E−07	6.3E−04	1.4E−03	7.4E−04	1.8E−05	1.5E−07	NA	NA	NA	NA	NA	NA	NA
lead	8.2E−09	1.1E−07	1.8E−08	5.3E−08	3.2E−05	7.6E−06	2.3E−05	2.6E−05	2.1E−06	NA	NA	NA	NA	NA	NA	NA
magnesium	2.3E−06	2.0E−05	1.6E−05	4.7E−05	1.5E+00	1.8E+00	5.2E+00	2.0E−02	1.6E−03	NA	2.6E+00	7.2E−01	3.3E−01	9.9E−01	NA	6.2E−03
manganese	6.7E−08	1.2E−06	2.6E−07	8.1E−07	7.3E−03	2.0E−03	6.3E−03	1.1E−03	8.7E−05	NA	5.5E−03	3.4E−03	3.7E−04	1.2E−03	NA	1.3E−05
mercury	1.3E−11	9.8E−11	7.2E−09	4.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	6.0E−10	7.6E−09	1.8E−08	1.7E−08	1.1E−04	3.7E−04	3.3E−04	1.3E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
nickel	1.9E−09	8.0E−08	7.1E−08	4.3E−08	1.6E−04	1.4E−04	8.7E−05	1.9E−05	7.8E−08	NA	NA	NA	NA	NA	NA	NA
selenium	6.7E−11	1.4E−09	3.6E−09	3.5E−09	2.9E−06	8.1E−06	7.9E−06	8.6E−07	7.1E−08	NA	NA	NA	NA	NA	NA	NA
silver	6.7E−10	2.1E−08	3.0E−08	7.2E−07	6.0E−05	9.7E−05	2.3E−03	4.4E−06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.3E−11	1.6E−10	2.6E−09	4.8E−10	4.1E−08	7.6E−06	1.4E−06	7.5E−07	6.1E−08	NA	NA	NA	NA	NA	NA	NA
uranium−total	5.2E−08	2.5E−07	5.3E−09	5.8E−08	9.1E−06	1.1E−06	1.2E−05	1.7E−05	1.4E−06	NA	8.2E−05	1.1E−05	1.6E−07	1.8E−06	NA	1.9E−07
vanadium	1.8E−09	1.2E−08	8.9E−09	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.4E−08	1.9E−05	4.3E−04	1.6E−04	9.4E−03	2.1E−01	7.5E−02	7.6E−05	6.2E−06	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	7.4E−13	2.7E−12	4.5E−13	9.2E−13	2.3E−06	9.1E−07	1.9E−06	6.6E−07	2.2E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.1E−15	2.5E−14	5.1E−18	6.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.3E−06	4.5E−07	5.2E−07	1.8E−07	4.4E−07	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E−13	6.7E−13	1.2E−17	2.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	7.8E−07	4.9E−07	5.6E−07	1.5E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.3E−06	1.7E−07	2.0E−07	1.1E−07	2.6E−07	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.1E−06	2.6E−05	1.7E−07	2.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.2E−14	1.5E−13	1.9E−12	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.9E−15	9.6E−15	8.7E−16	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-32c
INTAKES FOR TOXICANTS FOR CT ON-PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	8.3E-11	8.6E-10	5.7E-15	6.5E-15	2.0E-03	1.5E-08	1.7E-08	6.0E-07	4.9E-08	NA	NA	NA	NA	NA	NA	NA
aluminum	1.3E-06	6.2E-06	NA	NA	NA	NA	NA	1.2E-02	9.7E-04	NA	NA	NA	NA	NA	NA	NA
antimony	2.1E-09	3.3E-08	2.2E-08	7.9E-09	2.3E-05	2.2E-05	7.9E-06	5.7E-06	4.7E-07	NA	5.2E-04	2.7E-04	9.2E-05	3.4E-05	NA	1.2E-06
arsenic	1.3E-09	8.6E-09	6.4E-09	6.9E-10	NA	NA	NA	NA	NA	NA	5.9E-05	1.2E-05	4.4E-06	4.8E-07	NA	1.4E-07
barium	1.9E-08	3.0E-07	4.7E-08	4.0E-07	3.1E-04	6.5E-05	5.5E-04	1.5E-04	1.2E-05	NA	NA	NA	NA	NA	NA	NA
beryllium	1.7E-10	9.8E-10	4.3E-10	1.4E-12	2.2E-07	3.9E-07	1.3E-09	1.1E-06	8.9E-08	NA	2.1E-14	3.7E-15	5.8E-16	1.9E-18	NA	4.9E-17
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	6.8E-10	6.1E-08	1.6E-08	1.1E-07	5.5E-05	1.5E-05	9.8E-05	2.7E-06	2.2E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.9E-09	2.5E-08	3.8E-08	3.8E-08	1.1E-05	3.0E-05	3.0E-05	1.7E-05	1.4E-06	NA	1.7E-06	4.5E-07	2.2E-07	2.2E-07	NA	7.9E-09
cobalt	1.4E-09	1.3E-08	8.1E-08	2.9E-08	1.5E-05	1.7E-04	6.3E-05	1.6E-05	1.3E-06	NA	NA	NA	NA	NA	NA	NA
copper	6.1E-09	3.1E-07	6.4E-07	3.5E-07	7.7E-04	1.7E-03	9.0E-04	2.2E-05	1.8E-07	NA	NA	NA	NA	NA	NA	NA
lead	6.0E-08	7.8E-07	1.3E-07	3.9E-07	1.1E-04	2.6E-05	7.9E-05	8.8E-05	7.2E-06	NA	NA	NA	NA	NA	NA	NA
magnesium	4.4E-06	3.7E-05	3.1E-05	8.9E-05	4.2E+00	5.1E+00	1.5E+01	5.6E-02	4.6E-03	NA	3.2E+00	8.9E-01	4.2E-01	1.2E+00	NA	7.7E-03
manganese	1.4E-07	2.5E-06	5.4E-07	1.7E-06	1.4E-02	3.8E-03	1.2E-02	2.0E-03	1.7E-04	NA	1.0E-02	6.4E-03	7.0E-04	2.2E-03	NA	2.5E-05
mercury	5.4E-11	4.2E-10	3.1E-08	2.0E-10	3.7E-06	5.5E-04	3.6E-06	1.3E-07	5.5E-08	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.3E-09	1.6E-08	3.9E-08	3.5E-08	1.0E-04	3.5E-04	3.2E-04	1.3E-05	1.0E-06	NA	NA	NA	NA	NA	NA	NA
nickel	3.4E-09	1.5E-07	1.3E-07	7.9E-08	1.9E-04	1.7E-04	1.1E-04	2.3E-05	9.4E-08	NA	NA	NA	NA	NA	NA	NA
selenium	1.1E-10	2.3E-09	5.8E-09	5.7E-09	2.0E-06	5.6E-06	5.4E-06	5.9E-07	4.9E-08	NA	NA	NA	NA	NA	NA	NA
silver	1.1E-09	3.3E-08	4.7E-08	1.1E-06	2.0E-05	3.2E-05	7.8E-04	1.5E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.3E-11	2.7E-10	4.2E-09	7.7E-10	4.3E-08	8.0E-06	1.5E-06	7.9E-07	6.5E-08	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.1E-07	1.0E-06	2.2E-08	2.3E-07	1.5E-04	1.8E-05	1.9E-04	2.7E-04	2.2E-05	NA	1.9E-02	2.6E-03	3.6E-05	4.0E-04	NA	4.5E-05
vanadium	3.4E-09	2.4E-08	1.7E-08	5.0E-10	1.4E-05	2.4E-05	7.1E-07	3.5E-05	2.8E-07	NA	NA	NA	NA	NA	NA	NA
zinc	3.6E-08	2.9E-05	6.4E-04	2.3E-04	4.2E-02	9.3E-01	3.4E-01	3.4E-04	2.8E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.0E-12	1.1E-11	1.8E-12	3.7E-12	3.8E-07	1.5E-07	3.0E-07	1.1E-07	3.5E-09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-14	1.2E-13	2.5E-17	3.1E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	4.0E-06	1.4E-06	1.6E-06	5.5E-07	1.4E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.0E-12	1.3E-11	2.3E-16	4.3E-16	2.9E-05	7.3E-10	1.4E-09	3.7E-08	9.0E-08	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	4.8E-06	3.0E-06	3.5E-06	9.0E-07	2.2E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.6E-06	4.7E-07	5.5E-07	3.0E-07	7.3E-07	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.3E-07	5.9E-06	3.9E-08	4.5E-08	1.1E-06	9.4E-09	1.1E-08	2.0E-08	6.5E-08	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	4.5E-14	5.8E-13	7.5E-12	8.6E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.6E-15	2.3E-14	2.1E-15	2.4E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–32d
INTAKES FOR TOXICANTS FOR CT ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.8E−11	5.0E−10	3.3E−15	3.8E−15	2.2E−03	1.6E−08	1.9E−08	6.7E−07	5.5E−08	NA	NA	NA	NA	NA	NA	NA
aluminum	7.4E−07	3.5E−06	NA	NA	NA	NA	NA	9.3E−03	7.6E−04	NA	NA	NA	NA	NA	NA	NA
antimony	1.2E−09	1.8E−08	1.2E−08	4.3E−09	4.9E−05	4.5E−05	1.6E−05	1.2E−05	9.7E−07	NA	3.7E−05	1.9E−05	6.6E−06	2.4E−06	NA	8.9E−08
arsenic	7.4E−10	4.8E−09	3.5E−09	3.9E−10	NA	NA	NA	NA	NA	NA	7.3E−05	1.5E−05	5.4E−06	5.9E−07	NA	1.7E−07
barium	1.1E−08	1.8E−07	2.7E−08	2.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	8.9E−11	5.3E−10	2.3E−10	7.6E−13	3.2E−07	5.6E−07	1.8E−09	1.6E−06	1.3E−07	NA	1.5E−06	2.7E−07	4.3E−08	1.4E−10	NA	3.6E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.9E−10	2.6E−08	6.7E−09	4.4E−08	6.4E−05	1.7E−05	1.1E−04	3.1E−06	2.6E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.4E−09	1.2E−08	1.9E−08	1.8E−08	9.1E−06	2.6E−05	2.6E−05	1.5E−05	1.2E−06	NA	1.4E−04	3.7E−05	1.8E−05	1.8E−05	NA	6.5E−07
cobalt	7.4E−10	6.6E−09	4.2E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.0E−09	1.5E−07	3.2E−07	1.7E−07	5.2E−04	1.1E−03	6.1E−04	1.5E−05	1.2E−07	NA	NA	NA	NA	NA	NA	NA
lead	6.0E−08	7.8E−07	1.3E−07	3.9E−07	8.5E−05	2.0E−05	6.2E−05	6.9E−05	5.6E−06	NA	NA	NA	NA	NA	NA	NA
magnesium	2.2E−06	1.9E−05	1.5E−05	4.5E−05	1.5E+00	1.8E+00	5.2E+00	2.0E−02	1.6E−03	NA	1.7E+01	4.8E+00	2.2E+00	6.6E+00	NA	4.1E−02
manganese	7.4E−08	1.3E−06	2.8E−07	9.0E−07	NA	NA	NA	NA	NA	NA	1.7E−02	1.1E−02	1.2E−03	3.7E−03	NA	4.1E−05
mercury	3.0E−11	2.3E−10	1.7E−08	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	5.6E−10	7.2E−09	1.7E−08	1.6E−08	7.5E−05	2.6E−04	2.3E−04	9.2E−06	7.5E−07	NA	NA	NA	NA	NA	NA	NA
nickel	1.6E−09	6.9E−08	6.1E−08	3.7E−08	1.4E−04	1.3E−04	7.7E−05	1.7E−05	6.9E−08	NA	NA	NA	NA	NA	NA	NA
selenium	6.7E−11	1.4E−09	3.6E−09	3.5E−09	3.1E−06	8.5E−06	8.2E−06	8.9E−07	7.3E−08	NA	NA	NA	NA	NA	NA	NA
silver	5.6E−10	1.7E−08	2.5E−08	6.0E−07	1.3E−04	2.2E−04	5.2E−03	9.7E−06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.0E−11	1.0E−10	1.6E−09	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.9E−07	9.1E−07	1.9E−08	2.1E−07	8.6E−06	1.0E−06	1.1E−05	1.6E−05	1.3E−06	NA	1.2E−01	1.6E−02	2.2E−04	2.5E−03	NA	2.8E−04
vanadium	1.8E−09	1.3E−08	9.1E−09	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	8.9E−09	7.3E−06	1.6E−04	5.8E−05	8.6E−03	1.9E−01	6.9E−02	7.0E−05	5.7E−06	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	7.8E−13	2.8E−12	4.8E−13	9.7E−13	2.0E−07	7.9E−08	1.6E−07	5.7E−08	1.9E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.5E−15	2.1E−14	4.4E−18	5.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.8E−13	2.1E−12	3.7E−17	6.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.5E−07	2.2E−07	2.5E−07	6.6E−08	1.6E−07	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E−07	1.4E−06	9.4E−09	1.1E−08	1.9E−07	1.6E−09	1.8E−09	3.4E−09	1.1E−08	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.1E−14	1.4E−13	1.9E−12	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.7E−15	1.9E−14	1.7E−15	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–32e
INTAKES FOR TOXICANTS FOR CT ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	3.6E−11	3.7E−10	2.4E−15	2.8E−15	1.6E−03	1.2E−08	1.4E−08	4.9E−07	4.0E−08	NA	NA	NA	NA	NA	NA	NA
aluminum	7.1E−07	3.3E−06	NA	NA	NA	NA	NA	1.1E−02	8.7E−04	NA	NA	NA	NA	NA	NA	NA
antimony	1.4E−09	2.1E−08	1.4E−08	5.1E−09	NA	NA	NA	NA	NA	NA	1.6E−04	8.1E−05	2.8E−05	1.0E−05	NA	3.7E−07
arsenic	8.6E−10	5.5E−09	4.1E−09	4.5E−10	NA	NA	NA	NA	NA	NA	6.6E−05	1.3E−05	4.9E−06	5.4E−07	NA	1.6E−07
barium	1.2E−08	1.9E−07	2.9E−08	2.5E−07	2.3E−04	4.8E−05	4.1E−04	1.1E−04	9.1E−06	NA	NA	NA	NA	NA	NA	NA
beryllium	8.9E−11	5.3E−10	2.3E−10	7.6E−13	3.9E−07	6.9E−07	2.2E−09	1.9E−06	1.6E−07	NA	1.4E−06	2.6E−07	4.1E−08	1.3E−10	NA	3.4E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	2.9E−10	2.6E−08	6.7E−09	4.4E−08	3.0E−05	8.1E−06	5.3E−05	1.5E−06	1.2E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.3E−09	1.1E−08	1.8E−08	1.7E−08	NA	NA	NA	NA	NA	NA	1.1E−04	2.9E−05	1.4E−05	1.4E−05	NA	5.1E−07
cobalt	7.4E−10	6.6E−09	4.2E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.0E−09	1.1E−07	2.2E−07	1.2E−07	5.2E−04	1.1E−03	6.2E−04	1.5E−05	1.3E−07	NA	NA	NA	NA	NA	NA	NA
lead	2.2E−08	2.9E−07	4.8E−08	1.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	1.9E−06	1.6E−05	1.3E−05	3.8E−05	NA	NA	NA	NA	NA	NA	1.1E+01	3.0E+00	1.4E+00	4.2E+00	NA	2.6E−02
manganese	7.8E−08	1.4E−06	3.0E−07	9.5E−07	9.5E−03	2.6E−03	8.3E−03	1.4E−03	1.1E−04	NA	1.5E−02	9.3E−03	1.0E−03	3.2E−03	NA	3.6E−05
mercury	3.3E−11	2.5E−10	1.9E−08	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	5.2E−10	6.7E−09	1.6E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.6E−09	6.9E−08	6.1E−08	3.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	8.2E−11	1.8E−09	4.4E−09	4.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	5.6E−10	1.7E−08	2.5E−08	6.0E−07	7.3E−06	1.2E−05	2.9E−04	5.4E−07	NA	NA	NA	NA	NA	NA	NA	NA
thallium	2.1E−11	1.1E−10	1.7E−09	3.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	2.2E−07	1.0E−06	2.2E−08	2.4E−07	5.8E−05	7.1E−06	7.8E−05	1.1E−04	8.7E−06	NA	8.1E−02	1.1E−02	1.5E−04	1.7E−03	NA	1.9E−04
vanadium	1.8E−09	1.2E−08	8.7E−09	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	8.6E−09	7.0E−06	1.5E−04	5.6E−05	1.2E−02	2.6E−01	9.4E−02	9.5E−05	7.8E−06	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.3E−12	4.6E−12	7.7E−13	1.6E−12	2.7E−06	1.1E−06	2.2E−06	7.8E−07	2.6E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E−15	1.4E−14	2.9E−18	3.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.5E−06	5.3E−07	6.1E−07	2.1E−07	5.2E−07	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.4E−13	1.5E−12	2.6E−17	4.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	9.0E−07	5.6E−07	6.5E−07	1.7E−07	4.1E−07	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.5E−06	1.9E−07	2.3E−07	1.2E−07	3.0E−07	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E−07	1.7E−06	1.1E−08	1.3E−08	1.3E−07	1.1E−09	1.2E−09	2.2E−09	7.3E−09	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.0E−14	1.4E−13	1.7E−12	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.1E−15	2.1E−14	1.9E−15	2.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-32f
INTAKES FOR TOXICANTS FOR CT ON-PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.5E-11	4.6E-10	3.1E-15	3.5E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	1.4E-06	6.5E-06	NA	NA	NA	NA	NA	1.1E-02	9.1E-04	NA	NA	NA	NA	NA	NA	NA
antimony	4.1E-09	6.2E-08	4.2E-08	1.5E-08	1.4E-04	1.3E-04	4.6E-05	3.4E-05	2.8E-06	NA	6.0E-04	3.1E-04	1.1E-04	3.9E-05	NA	1.4E-06
arsenic	2.6E-09	1.7E-08	1.2E-08	1.4E-09	9.2E-06	2.0E-05	2.2E-06	1.1E-05	9.2E-08	NA	2.2E-05	4.4E-06	1.6E-06	1.8E-07	NA	5.2E-08
barium	1.5E-08	2.4E-07	3.8E-08	3.2E-07	1.6E-04	3.4E-05	2.9E-04	7.8E-05	6.4E-06	NA	NA	NA	NA	NA	NA	NA
beryllium	1.3E-10	7.9E-10	3.5E-10	1.1E-12	1.7E-07	3.0E-07	9.8E-10	8.3E-07	6.8E-08	NA	3.3E-07	5.9E-08	9.3E-09	3.1E-11	NA	7.8E-10
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.2E-10	7.4E-08	1.9E-08	1.3E-07	1.3E-04	3.6E-05	2.4E-04	6.5E-06	5.3E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.6E-09	2.2E-08	3.5E-08	3.4E-08	1.1E-05	3.0E-05	3.0E-05	1.7E-05	1.4E-06	NA	1.6E-05	4.3E-06	2.1E-06	2.1E-06	NA	7.4E-08
cobalt	1.5E-09	1.3E-08	8.3E-08	3.0E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.4E-09	1.7E-07	3.6E-07	2.0E-07	7.1E-04	1.5E-03	8.4E-04	2.1E-05	1.7E-07	NA	NA	NA	NA	NA	NA	NA
lead	1.1E-08	1.4E-07	2.3E-08	7.0E-08	2.7E-05	6.4E-06	1.9E-05	2.2E-05	1.8E-06	NA	NA	NA	NA	NA	NA	NA
magnesium	3.3E-06	2.8E-05	2.3E-05	6.6E-05	NA	NA	NA	NA	NA	NA	2.1E+00	5.8E-01	2.7E-01	8.1E-01	NA	5.1E-03
manganese	1.7E-07	3.0E-06	6.4E-07	2.0E-06	NA	NA	NA	NA	NA	NA	1.3E-02	7.8E-03	8.4E-04	2.7E-03	NA	3.0E-05
mercury	2.6E-11	2.0E-10	1.5E-08	9.9E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	7.8E-10	1.0E-08	2.4E-08	2.2E-08	4.8E-05	1.6E-04	1.5E-04	5.8E-06	4.8E-07	NA	NA	NA	NA	NA	NA	NA
nickel	3.6E-09	1.6E-07	1.4E-07	8.3E-08	2.1E-04	1.9E-04	1.1E-04	2.5E-05	1.0E-07	NA	NA	NA	NA	NA	NA	NA
selenium	1.2E-10	2.6E-09	6.6E-09	6.4E-09	3.2E-06	8.9E-06	8.6E-06	9.4E-07	7.7E-08	NA	NA	NA	NA	NA	NA	NA
silver	1.4E-09	4.3E-08	6.1E-08	1.5E-06	6.9E-05	1.1E-04	2.7E-03	5.1E-06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	6.0E-11	3.0E-10	4.8E-09	8.7E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	6.3E-08	3.0E-07	6.4E-09	7.0E-08	4.9E-05	6.0E-06	6.5E-05	9.0E-05	7.4E-06	NA	2.2E-03	3.0E-04	4.1E-06	4.7E-05	NA	5.2E-06
vanadium	3.4E-09	2.4E-08	1.7E-08	5.0E-10	1.1E-05	1.9E-05	5.5E-07	2.7E-05	2.2E-07	NA	NA	NA	NA	NA	NA	NA
zinc	1.4E-08	1.1E-05	2.5E-04	9.0E-05	1.1E-02	2.4E-01	8.8E-02	8.9E-05	7.3E-06	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.1E-13	2.5E-12	4.3E-13	8.8E-13	1.5E-05	5.7E-06	1.2E-05	4.1E-06	1.4E-07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E-15	1.7E-14	3.5E-18	4.3E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.0E-05	7.0E-06	8.1E-06	2.8E-06	6.9E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.8E-13	2.1E-12	3.7E-17	6.9E-17	2.5E-05	6.3E-10	1.2E-09	3.1E-08	7.7E-08	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.6E-05	1.0E-05	1.2E-05	3.0E-06	7.4E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	9.1E-05	1.2E-05	1.4E-05	7.6E-06	1.9E-05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.9E-06	1.2E-05	7.8E-08	9.1E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.0E-14	1.3E-13	1.7E-12	1.9E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-15	1.7E-14	1.5E-15	1.7E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–32g
INTAKES FOR TOXICANTS FOR CT ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	8.6E−11	8.9E−10	5.9E−15	6.7E−15	7.4E−03	5.5E−08	6.3E−08	2.2E−06	1.8E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.1E−06	5.1E−06	NA	NA	NA	NA	NA	9.3E−03	7.6E−04	NA	NA	NA	NA	NA	NA	NA
antimony	1.7E−09	2.6E−08	1.7E−08	6.4E−09	1.9E−05	1.7E−05	6.3E−06	4.6E−06	3.8E−07	NA	3.7E−05	1.9E−05	6.6E−06	2.4E−06	NA	8.9E−08
arsenic	1.1E−09	7.2E−09	5.3E−09	5.8E−10	1.2E−05	2.7E−05	2.9E−06	1.5E−05	1.2E−07	NA	7.3E−05	1.5E−05	5.4E−06	5.9E−07	NA	1.7E−07
barium	1.5E−08	2.4E−07	3.7E−08	3.1E−07	2.0E−04	4.3E−05	3.7E−04	1.0E−04	8.2E−06	NA	NA	NA	NA	NA	NA	NA
beryllium	1.2E−10	7.0E−10	3.1E−10	1.0E−12	1.7E−07	2.9E−07	9.6E−10	8.2E−07	6.7E−08	NA	1.5E−06	2.7E−07	4.3E−08	1.4E−10	NA	3.6E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.5E−10	4.0E−08	1.0E−08	6.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.1E−09	1.8E−08	2.8E−08	2.8E−08	2.9E−05	8.3E−05	8.2E−05	4.8E−05	3.9E−06	NA	1.4E−04	3.7E−05	1.8E−05	1.8E−05	NA	6.5E−07
cobalt	1.1E−09	9.5E−09	6.0E−08	2.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.6E−09	2.9E−07	5.9E−07	3.2E−07	7.0E−04	1.5E−03	8.2E−04	2.0E−05	1.7E−07	NA	NA	NA	NA	NA	NA	NA
lead	1.4E−07	1.8E−06	3.0E−07	9.0E−07	3.0E−03	7.2E−04	2.2E−03	2.4E−03	2.0E−04	NA	NA	NA	NA	NA	NA	NA
magnesium	3.6E−06	3.0E−05	2.5E−05	7.2E−05	NA	NA	NA	NA	NA	NA	1.7E+01	4.8E+00	2.2E+00	6.6E+00	NA	4.1E−02
manganese	1.1E−07	1.9E−06	4.1E−07	1.3E−06	7.1E−03	1.9E−03	6.2E−03	1.0E−03	8.5E−05	NA	1.7E−02	1.1E−02	1.2E−03	3.7E−03	NA	4.1E−05
mercury	4.1E−11	3.2E−10	2.3E−08	1.5E−10	1.9E−04	2.9E−02	1.9E−04	7.0E−06	2.9E−06	NA	NA	NA	NA	NA	NA	NA
molybdenum	9.3E−10	1.2E−08	2.9E−08	2.6E−08	7.8E−05	2.7E−04	2.4E−04	9.5E−06	7.8E−07	NA	NA	NA	NA	NA	NA	NA
nickel	2.3E−09	9.9E−08	8.8E−08	5.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	7.8E−11	1.7E−09	4.2E−09	4.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	8.9E−10	2.8E−08	4.0E−08	9.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.1E−11	1.6E−10	2.5E−09	4.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.9E−07	9.1E−07	1.9E−08	2.1E−07	1.2E−05	1.4E−06	1.5E−05	2.1E−05	1.7E−06	NA	1.2E−01	1.6E−02	2.2E−04	2.5E−03	NA	2.8E−04
vanadium	2.7E−09	1.9E−08	1.4E−08	3.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.3E−08	1.1E−05	2.3E−04	8.5E−05	1.2E−02	2.7E−01	9.7E−02	9.8E−05	8.0E−06	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	8.6E−13	3.1E−12	5.2E−13	1.1E−12	2.4E−07	9.6E−08	1.9E−07	6.9E−08	2.3E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.1E−15	2.5E−14	5.1E−18	6.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.3E−13	2.7E−12	4.9E−17	9.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.2E−14	1.5E−13	2.0E−12	2.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.7E−15	1.9E−14	1.7E−15	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–33a
INTAKES FOR CARCINOGENS FOR ON–PROPERTY CHILD
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.0E−02	3.5E−01	5.5E−01	4.5E+00	1.3E+03	4.9E+03	4.0E+04	3.8E+02	NA	2.8E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.7E−03	1.4E−01	1.1E−03	2.4E−03	1.7E+02	6.7E+00	1.4E+01	1.5E+02	NA	1.1E+00	1.2E+02	3.9E+01	1.8E−01	3.9E−01	NA	NA
Pu_{238}	1.3E−01	3.5E+00	1.1E−04	5.3E−04	8.4E+00	6.2E−02	2.9E−01	1.6E+03	NA	1.2E+01	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.9E−02	4.9E−01	4.0E−05	1.9E−04	2.3E+00	1.7E−02	8.0E−02	4.5E+02	NA	3.4E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.7E+00	8.2E+01	4.1E+00	1.7E+02	1.7E+02	4.6E+01	2.0E+03	1.0E+03	NA	7.6E+00	6.8E+03	2.1E+03	4.5E+01	1.9E+03	NA	NA
Ru_{106}	1.1E−02	2.8E−01	2.4E−02	1.8E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.3E−02	9.6E−01	7.8E−02	9.1E+00	1.8E+04	3.5E+03	4.1E+05	6.5E+02	NA	4.8E+00	6.9E+02	3.1E+02	1.4E+01	1.7E+03	NA	NA
Tc_{99}	1.2E−01	3.6E+00	2.6E+00	7.0E+01	3.8E+05	1.3E+06	3.6E+07	2.3E+03	NA	1.7E+01	6.9E+06	2.0E+06	9.3E+05	2.6E+07	NA	NA
Th_{230}	5.9E+00	1.6E+02	1.8E−01	3.4E+00	2.6E+02	1.3E+01	2.5E+02	2.7E+04	NA	2.0E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.5E−01	1.2E+01	1.3E−02	2.6E−01	1.1E+02	5.3E+00	1.0E+02	1.1E+04	NA	8.4E+01	NA	NA	NA	NA	NA	NA
U_{234}	1.5E+01	4.0E+02	4.1E+00	2.9E+02	8.3E+04	4.9E+03	3.4E+05	1.8E+05	NA	1.4E+03	2.0E+06	5.2E+05	3.5E+03	2.5E+05	NA	NA
$U_{235/236}$	1.2E+00	3.3E+01	3.4E−01	2.4E+01	7.0E+03	4.1E+02	2.9E+04	1.5E+04	NA	1.1E+02	9.0E+04	2.4E+04	1.6E+02	1.1E+04	NA	NA
U_{238+2d}	1.7E+01	4.3E+02	4.5E+00	3.2E+02	1.1E+05	6.3E+03	4.4E+05	2.3E+05	NA	1.7E+03	1.9E+06	5.1E+05	3.4E+03	2.5E+05	NA	NA
Rn_{222+4d}	4.2E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.0E−10	1.4E−08	5.1E−09	3.6E−09	8.1E−06	8.6E−06	6.1E−06	1.2E−05	1.2E−07	NA	5.3E−05	2.0E−05	3.6E−06	2.6E−06	NA	1.1E−07
beryllium	4.4E−11	1.4E−09	3.0E−10	6.4E−12	2.2E−07	1.9E−07	4.0E−09	1.3E−06	1.3E−07	NA	2.3E−10	8.0E−11	6.1E−12	1.3E−13	NA	4.7E−13
cadmium	1.7E−10	8.3E−08	1.0E−08	4.4E−07	9.8E−05	1.3E−05	5.5E−04	5.8E−06	5.8E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.3E−10	3.9E−08	2.9E−08	1.9E−07	1.5E−05	2.1E−05	1.3E−04	3.0E−05	3.0E−06	NA	1.6E−06	8.5E−07	2.0E−07	1.3E−06	NA	6.6E−09
nickel	9.4E−10	2.2E−07	9.6E−08	3.8E−07	1.9E−04	8.5E−05	3.3E−04	2.8E−05	1.4E−07	NA	NA	NA	NA	NA	NA	NA
benzene	4.0E−16	1.9E−14	3.3E−18	2.5E−17	7.4E−07	1.5E−10	1.2E−09	2.9E−09	1.4E−11	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	4.6E−13	9.2E−12	7.4E−13	9.8E−12	9.3E−07	1.7E−07	2.3E−06	3.1E−07	1.3E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.9E−13	1.6E−11	8.0E−14	5.9E−13	6.7E−06	3.6E−08	2.7E−07	1.6E−07	4.9E−07	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−15	9.4E−14	9.4E−18	7.5E−17	3.1E−06	3.9E−10	3.1E−09	1.0E−08	3.0E−08	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.1E−06	2.0E−10	1.6E−09	4.5E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	1.7E−08	3.2E−12	2.4E−11	6.3E−11	1.9E−10	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E−13	8.8E−12	7.6E−17	9.0E−16	1.3E−05	1.6E−10	1.9E−09	2.0E−08	5.9E−08	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.8E−13	1.2E−11	3.6E−14	2.9E−13	1.8E−05	7.4E−08	6.1E−07	4.6E−07	1.4E−06	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	7.9E−15	2.7E−13	5.8E−18	4.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E−07	4.3E−06	1.4E−08	1.1E−07	1.1E−06	4.6E−09	3.5E−08	2.4E−08	9.7E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.5E−07	1.5E−05	5.3E−09	3.9E−08	4.1E−06	1.6E−09	1.2E−08	2.3E−08	6.9E−08	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.3E−12	6.3E−11	3.6E−11	2.7E−10	3.5E−06	3.8E−06	2.8E−05	1.5E−06	4.5E−06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.6E−12	6.8E−11	1.1E−10	7.9E−10	1.6E−06	6.1E−06	4.6E−05	1.3E−06	3.8E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.7E−12	7.1E−11	1.1E−10	8.6E−10	1.7E−06	6.7E−06	5.0E−05	1.3E−06	4.0E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E−12	5.7E−11	5.3E−10	3.9E−09	5.2E−07	1.9E−05	1.4E−04	1.1E−06	3.2E−06	NA	NA	NA	NA	NA	NA	NA
chrysene	2.4E−12	6.6E−11	3.8E−11	2.8E−10	3.3E−06	3.6E−06	2.7E−05	1.4E−06	4.2E−06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.6E−13	2.0E−11	1.7E−10	1.3E−09	1.9E−07	7.0E−06	5.2E−05	3.9E−07	1.2E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.7E−12	4.5E−11	2.1E−10	1.6E−09	7.1E−07	1.1E−05	8.4E−05	1.0E−06	3.1E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	4.8E−12	4.7E−10	1.2E−09	9.0E−09	3.6E−06	1.1E−05	8.2E−05	2.5E−06	1.5E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	4.8E−14	2.0E−12	9.8E−11	7.3E−10	1.9E−07	2.0E−05	1.5E−04	6.0E−07	3.6E−07	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	9.0E−15	6.4E−13	4.0E−12	3.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.1E−14	3.1E−13	2.0E−13	1.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.5E−15	6.6E−14	2.7E−14	2.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E−15	9.3E−14	4.1E−15	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	1.1E−12	1.4E−09	1.2E−08	1.0E−11	3.0E−12	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.6E−16	8.8E−15	3.0E−12	2.5E−11	1.5E−12	2.3E−08	1.9E−07	3.4E−11	1.0E−11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.0E−16	2.4E−15	1.3E−12	1.1E−11	1.4E−12	4.0E−08	3.4E−07	4.1E−11	1.2E−11	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–33b
INTAKES FOR CARCINOGENS FOR ON–PROPERTY CHILD
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.2E−03	4.0E−02	6.3E−02	5.2E−01	1.1E+03	4.2E+03	3.5E+04	3.2E+02	NA	2.4E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.1E−04	9.6E−03	7.7E−05	1.6E−04	3.9E+02	1.5E+01	3.2E+01	3.4E+02	NA	2.5E+00	5.0E+00	1.6E+00	7.3E−03	1.6E−02	NA	NA
Pu_{238}	7.3E−03	1.9E−01	6.3E−06	2.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.8E−03	4.7E−02	3.9E−06	1.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.5E−01	7.7E+00	3.9E−01	1.6E+01	NA	NA	NA	NA	NA	NA	6.9E+03	2.2E+03	4.6E+01	2.0E+03	NA	NA
Ru_{106}	1.4E−03	3.5E−02	3.1E−03	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.1E−03	8.7E−02	7.0E−03	8.2E−01	1.7E+04	3.2E+03	3.8E+05	5.9E+02	NA	4.4E+00	2.9E−01	1.3E−01	6.0E−03	7.1E−01	NA	NA
Tc_{99}	1.6E−02	4.5E−01	3.2E−01	8.9E+00	1.1E+05	3.9E+05	1.1E+07	6.7E+02	NA	5.0E+00	2.6E+05	7.6E+04	3.5E+04	9.7E+05	NA	NA
Th_{230}	2.7E−01	7.2E+00	8.1E−03	1.6E−01	7.1E+00	3.5E−01	6.8E+00	7.4E+02	NA	5.5E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.9E−02	7.8E−01	8.8E−04	1.7E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	7.8E−01	2.0E+01	2.1E−01	1.5E+01	7.6E+02	4.5E+01	3.2E+03	1.7E+03	NA	1.2E+01	4.6E+03	1.2E+03	8.0E+00	5.8E+02	NA	NA
$U_{235/36}$	6.9E−02	1.8E+00	1.9E−02	1.3E+00	1.3E+02	7.9E+00	5.5E+02	2.9E+02	NA	2.2E+00	2.1E+02	5.5E+01	3.7E−01	2.7E+01	NA	NA
U_{238+2d}	9.4E−01	2.5E+01	2.6E−01	1.8E+01	9.7E+02	5.7E+01	4.0E+03	2.1E+03	NA	1.6E+01	4.5E+03	1.2E+03	7.8E+00	5.7E+02	NA	NA
Rn_{222+4d}	6.5E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.0E−10	3.7E−09	1.3E−09	9.4E−10	NA	NA	NA	NA	NA	NA	7.5E−06	2.8E−06	5.1E−07	3.6E−07	NA	1.5E−08
beryllium	1.1E−11	3.6E−10	7.6E−11	1.6E−12	3.0E−07	2.5E−07	5.4E−09	1.8E−06	1.8E−07	NA	2.1E−21	7.3E−22	5.6E−23	1.2E−24	NA	4.3E−24
cadmium	6.0E−11	3.0E−08	3.8E−09	1.6E−07	3.2E−05	4.2E−06	1.8E−04	1.9E−06	1.9E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.0E−10	9.4E−09	7.1E−09	4.5E−08	7.9E−06	1.1E−05	6.9E−05	1.6E−05	1.6E−06	NA	3.2E−08	1.7E−08	3.9E−09	2.6E−08	NA	1.3E−10
nickel	2.7E−10	6.5E−08	2.8E−08	1.1E−07	1.3E−04	5.7E−05	2.2E−04	1.9E−05	9.3E−08	NA	NA	NA	NA	NA	NA	NA
benzene	1.4E−16	6.4E−15	1.1E−18	8.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.1E−13	2.2E−12	1.8E−13	2.3E−12	1.9E−06	3.6E−07	4.7E−06	6.5E−07	2.6E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.4E−14	1.2E−12	5.9E−15	4.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E−16	2.0E−14	2.0E−18	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.3E−14	5.5E−13	4.8E−18	5.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	8.8E−14	2.2E−12	6.6E−15	5.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	2.6E−15	8.9E−14	1.9E−18	1.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.0E−07	2.1E−05	6.8E−08	5.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E−06	7.0E−05	2.5E−08	1.9E−07	7.9E−07	3.1E−10	2.3E−09	4.4E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.9E−13	7.9E−12	4.5E−12	3.4E−11	1.2E−07	1.3E−07	9.9E−07	5.3E−08	1.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.5E−13	9.2E−12	1.4E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.3E−13	1.1E−11	1.8E−11	1.4E−10	7.8E−08	3.1E−07	2.3E−06	6.1E−08	1.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.7E−13	9.8E−12	9.0E−11	6.7E−10	3.2E−08	1.2E−06	8.8E−06	6.6E−08	2.0E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	3.6E−13	1.0E−11	5.8E−12	4.3E−11	2.0E−07	2.1E−07	1.6E−06	8.4E−08	2.5E−07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.1E−13	2.9E−12	2.5E−11	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.7E−13	7.2E−12	3.4E−11	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	3.4E−13	3.3E−11	8.6E−11	6.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.6E−14	6.9E−13	3.4E−11	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.7E−15	1.2E−13	7.6E−13	5.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	6.0E−16	1.7E−14	1.1E−14	8.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.5E−16	9.2E−15	3.8E−15	2.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.8E−16	7.8E−15	3.4E−16	2.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	7.1E−17	1.7E−15	5.9E−13	5.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.4E−17	8.3E−16	4.3E−13	3.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-33c
INTAKES FOR CARCINOGENS FOR ON-PROPERTY CHILD
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	4.5E-03	1.5E-01	2.4E-01	1.9E+00	1.1E+03	4.4E+03	3.6E+04	3.4E+02	NA	2.5E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.0E-03	3.1E-02	2.5E-04	5.4E-04	NA	NA	NA	NA	NA	NA	4.2E+01	1.3E+01	6.1E-02	1.3E-01	NA	NA
Pu_{238}	2.5E-02	6.4E-01	2.1E-05	9.9E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	5.5E-03	1.4E-01	1.2E-05	5.6E-05	5.6E-01	4.1E-03	1.9E-02	1.1E+02	NA	8.1E-01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.4E+00	1.0E+02	5.1E+00	2.2E+02	3.0E+01	8.1E+00	3.4E+02	1.8E+02	NA	1.3E+00	7.0E+03	2.2E+03	4.7E+01	2.0E+03	NA	NA
Ru_{106}	2.0E-03	5.1E-02	4.5E-03	3.3E-05	2.3E+03	1.2E+03	8.5E+00	1.1E+03	NA	7.8E+00	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E-02	5.9E-01	4.8E-02	5.6E+00	3.1E+04	5.9E+03	6.9E+05	1.1E+03	NA	8.1E+00	1.7E+01	7.7E+00	3.6E-01	4.2E+01	NA	NA
Tc_{99}	1.4E-01	4.1E+00	2.9E+00	8.0E+01	NA	NA	NA	NA	NA	NA	2.2E+06	6.6E+05	3.0E+05	8.4E+06	NA	NA
Th_{230}	7.3E+00	1.9E+02	2.2E-01	4.3E+00	7.8E+00	3.8E-01	7.5E+00	8.1E+02	NA	6.0E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.3E-01	6.1E+00	6.9E-03	1.3E-01	9.3E+01	4.5E+00	8.9E+01	9.6E+03	NA	7.1E+01	NA	NA	NA	NA	NA	NA
U_{234}	4.6E+00	1.2E+02	1.2E+00	8.8E+01	4.0E+02	2.4E+01	1.7E+03	8.8E+02	NA	6.5E+00	1.0E+06	2.8E+05	1.8E+03	1.3E+05	NA	NA
U_{235236}	3.4E-01	8.9E+00	9.2E-02	6.5E+00	2.4E+03	1.4E+02	9.8E+03	5.2E+03	NA	3.9E+01	4.8E+04	1.3E+04	8.4E+01	6.1E+03	NA	NA
U_{238+2d}	4.5E+00	1.2E+02	1.2E+00	8.7E+01	5.1E+02	3.0E+01	2.1E+03	1.1E+03	NA	8.4E+00	1.0E+06	2.7E+05	1.8E+03	1.3E+05	NA	NA
Rn_{222+4d}	2.4E+04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	2.0E-10	7.0E-09	2.5E-09	1.8E-09	NA	NA	NA	NA	NA	NA	2.5E-05	9.7E-06	1.7E-06	1.2E-06	NA	5.1E-08
beryllium	2.4E-11	7.9E-10	1.7E-10	3.6E-12	1.8E-07	1.5E-07	3.2E-09	1.1E-06	1.1E-07	NA	8.8E-15	3.0E-15	2.3E-16	4.9E-18	NA	1.8E-17
cadmium	1.0E-10	5.0E-08	6.3E-09	2.7E-07	4.4E-05	5.8E-06	2.5E-04	2.6E-06	2.6E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.3E-10	2.0E-08	1.5E-08	9.7E-08	8.7E-06	1.2E-05	7.6E-05	1.7E-05	1.7E-06	NA	7.1E-07	3.7E-07	8.6E-08	5.6E-07	NA	2.8E-09
nickel	5.0E-10	1.2E-07	5.1E-08	2.0E-07	1.5E-04	6.8E-05	2.7E-04	2.2E-05	1.1E-07	NA	NA	NA	NA	NA	NA	NA
benzene	6.0E-16	2.8E-14	5.0E-18	3.8E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.4E-13	8.8E-12	7.1E-13	9.4E-12	3.1E-07	5.8E-08	7.7E-07	1.0E-07	4.2E-09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	1.7E-13	1.5E-11	7.1E-14	5.3E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.9E-15	9.8E-14	9.8E-18	7.8E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E-13	1.1E-11	9.2E-17	1.1E-15	2.4E-05	2.9E-10	3.4E-09	3.6E-08	1.1E-07	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.3E-13	3.4E-12	9.9E-15	8.1E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.1E-14	3.9E-13	8.3E-18	6.7E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.4E-07	4.8E-06	1.5E-08	1.2E-07	9.2E-07	3.7E-09	2.8E-08	1.9E-08	7.7E-08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.7E-07	1.7E-05	5.9E-09	4.4E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.7E-12	4.6E-11	2.6E-11	2.0E-10	9.5E-07	1.0E-06	7.6E-06	4.0E-07	1.2E-06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.1E-12	5.5E-11	8.5E-11	6.3E-10	4.1E-07	1.5E-06	1.1E-05	3.1E-07	9.4E-07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E-12	5.3E-11	8.5E-11	6.3E-10	1.4E-06	5.5E-06	4.1E-05	1.1E-06	3.3E-06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E-12	5.6E-11	5.1E-10	3.8E-09	9.4E-08	3.5E-06	2.6E-05	1.9E-07	5.8E-07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.6E-12	4.4E-11	2.5E-11	1.9E-10	1.5E-06	1.6E-06	1.2E-05	6.4E-07	1.9E-06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.9E-13	1.8E-11	1.6E-10	1.2E-09	2.1E-08	7.8E-07	5.8E-06	4.4E-08	1.3E-07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.3E-12	3.4E-11	1.6E-10	1.2E-09	1.1E-07	1.7E-06	1.3E-05	1.6E-07	4.7E-07	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	2.5E-12	2.4E-10	6.4E-10	4.7E-09	2.3E-08	7.1E-08	5.3E-07	1.6E-08	9.6E-09	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	7.3E-14	3.1E-12	1.5E-10	1.1E-09	4.8E-08	4.9E-06	3.6E-05	1.5E-07	8.9E-08	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	6.6E-15	4.7E-13	2.9E-12	2.2E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	2.2E-15	6.1E-14	4.0E-14	3.0E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.2E-16	1.4E-14	5.7E-15	4.3E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.8E-16	1.9E-14	8.3E-16	6.2E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-16	3.5E-15	1.2E-12	1.0E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E-16	3.6E-15	1.9E-12	1.6E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–33d
INTAKES FOR CARCINOGENS FOR ON–PROPERTY CHILD
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.0E−03	6.6E−02	1.1E−01	8.7E−01	7.3E+02	2.8E+03	2.3E+04	2.2E+02	NA	1.6E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.5E−04	2.0E−02	1.6E−04	3.4E−04	NA	NA	NA	NA	NA	NA	1.3E+03	4.1E+02	1.9E+00	4.1E+00	NA	NA
Pu_{238}	3.4E−02	8.7E−01	2.9E−05	1.3E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	4.0E−03	1.0E−01	8.7E−06	4.1E−05	1.3E+00	9.5E−03	4.5E−02	2.5E+02	NA	1.9E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.0E−01	1.5E+01	7.7E−01	3.3E+01	NA	NA	NA	NA	NA	NA	3.4E+04	1.1E+04	2.2E+02	9.6E+03	NA	NA
Ru_{106}	9.9E−04	2.5E−02	2.2E−03	1.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.0E−03	2.1E−01	1.7E−02	2.0E+00	2.5E+04	4.9E+03	5.7E+05	8.9E+02	NA	6.6E+00	2.8E+04	1.3E+04	6.0E+02	7.0E+04	NA	NA
Tc_{99}	4.2E−02	1.2E+00	8.6E−01	2.4E+01	NA	NA	NA	NA	NA	NA	1.4E+07	4.2E+06	1.9E+06	5.4E+07	NA	NA
Th_{230}	1.9E+00	5.1E+01	5.8E−02	1.1E+00	7.2E+00	3.5E−01	6.9E+00	7.5E+02	NA	5.6E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.3E−01	3.3E+00	3.8E−03	7.4E−02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.6E+00	9.4E+01	9.7E−01	6.8E+01	1.3E+03	7.5E+01	5.3E+03	2.8E+03	NA	2.1E+01	6.5E+06	1.7E+06	1.1E+04	8.3E+05	NA	NA
U_{235236}	2.7E−01	7.2E+00	7.4E−02	5.2E+00	1.5E+02	9.0E+00	6.3E+02	3.4E+02	NA	2.5E+00	3.0E+05	7.8E+04	5.2E+02	3.8E+04	NA	NA
U_{238+2d}	3.8E+00	1.0E+02	1.0E+00	7.2E+01	8.9E+02	5.3E+01	3.7E+03	2.0E+03	NA	1.5E+01	6.3E+06	1.7E+06	1.1E+04	8.1E+05	NA	NA
Rn_{222+4d}	2.8E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.1E−10	3.9E−09	1.4E−09	9.8E−10	NA	NA	NA	NA	NA	NA	3.1E−05	1.2E−05	2.1E−06	1.5E−06	NA	6.2E−08
beryllium	1.3E−11	4.3E−10	9.1E−11	1.9E−12	2.6E−07	2.2E−07	4.7E−09	1.5E−06	1.5E−07	NA	6.5E−07	2.2E−07	1.7E−08	3.6E−10	NA	1.3E−09
cadmium	4.2E−11	2.1E−08	2.6E−09	1.1E−07	5.2E−05	6.9E−06	2.9E−04	3.1E−06	3.1E−07	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.1E−10	9.7E−09	7.3E−09	4.7E−08	7.4E−06	1.0E−05	6.5E−05	1.5E−05	1.5E−06	NA	5.9E−05	3.0E−05	7.2E−06	4.6E−05	NA	2.3E−07
nickel	2.4E−10	5.6E−08	2.4E−08	9.4E−08	1.1E−04	5.0E−05	2.0E−04	1.6E−05	8.2E−08	NA	NA	NA	NA	NA	NA	NA
benzene	7.1E−17	3.3E−15	5.9E−19	4.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−13	2.3E−12	1.9E−13	2.5E−12	1.6E−07	3.1E−08	4.1E−07	5.6E−08	2.2E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	4.1E−14	3.6E−12	1.7E−14	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.2E−16	1.7E−14	1.7E−18	1.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E−14	1.7E−12	1.5E−17	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.1E−14	1.1E−12	3.1E−15	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.4E−15	4.8E−14	1.0E−18	8.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.3E−08	1.1E−06	3.7E−09	2.8E−08	1.6E−07	6.3E−10	4.7E−09	3.3E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.6E−08	4.0E−06	1.4E−09	1.1E−08	3.9E−07	1.6E−10	1.2E−09	2.2E−09	6.6E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.1E−13	1.1E−11	6.4E−12	4.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.5E−13	1.2E−11	1.9E−11	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.7E−13	1.2E−11	2.0E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.9E−13	1.1E−11	9.7E−11	7.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.1E−13	1.1E−11	6.6E−12	4.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−13	3.6E−12	3.1E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.0E−13	7.9E−12	3.7E−11	2.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	9.9E−13	9.6E−11	2.5E−10	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	8.8E−15	3.7E−13	1.8E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.6E−15	1.2E−13	7.3E−13	5.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.2E−15	6.2E−14	4.1E−14	3.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.0E−16	7.9E−15	3.3E−15	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.5E−16	1.5E−14	6.7E−16	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.5E−17	8.4E−16	2.9E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E−17	4.4E−16	2.3E−13	1.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-33e
INTAKES FOR CARCINOGENS FOR ON-PROPERTY CHILD
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.0E-03	6.8E-02	1.1E-01	8.8E-01	1.1E+03	4.2E+03	3.5E+04	3.2E+02	NA	2.4E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.8E-04	2.4E-02	1.9E-04	4.1E-04	NA	NA	NA	NA	NA	NA	1.0E+03	3.2E+02	1.5E+00	3.2E+00	NA	NA
Pu_{238}	4.0E-02	1.0E+00	3.4E-05	1.6E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.6E-03	1.2E-01	1.0E-05	4.7E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	4.2E-01	1.3E+01	6.4E-01	2.7E+01	NA	NA	NA	NA	NA	NA	2.9E+04	9.1E+03	1.9E+02	8.2E+03	NA	NA
Ru_{106}	1.6E-03	4.1E-02	3.7E-03	2.7E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.8E-03	2.0E-01	1.6E-02	1.9E+00	1.9E+04	3.7E+03	4.3E+05	6.7E+02	NA	5.0E+00	1.9E+04	8.6E+03	4.0E+02	4.7E+04	NA	NA
Tc_{99}	2.5E-02	7.3E-01	5.2E-01	1.4E+01	9.3E+04	3.2E+05	8.8E+06	5.5E+02	NA	4.1E+00	1.0E+07	3.0E+06	1.4E+06	3.8E+07	NA	NA
Th_{230}	2.0E+00	5.3E+01	5.9E-02	1.2E+00	9.3E+00	4.6E-01	8.9E+00	9.7E+02	NA	7.2E+00	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.1E-01	2.8E+00	3.2E-03	6.3E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.8E+00	1.0E+02	1.0E+00	7.2E+01	3.7E+03	2.2E+02	1.5E+04	8.1E+03	NA	6.0E+01	4.5E+06	1.2E+06	7.9E+03	5.8E+05	NA	NA
$U_{235/36}$	3.1E-01	8.3E+00	8.6E-02	6.0E+00	4.7E+02	2.8E+01	1.9E+03	1.0E+03	NA	7.6E+00	2.1E+05	5.4E+04	3.6E+02	2.6E+04	NA	NA
U_{238+2d}	4.2E+00	1.1E+02	1.1E+00	8.1E+01	6.9E+03	4.1E+02	2.9E+04	1.5E+04	NA	1.1E+02	4.4E+06	1.2E+06	7.7E+03	5.6E+05	NA	NA
Rn_{222+4d}	2.2E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.3E-10	4.5E-09	1.6E-09	1.1E-09	NA	NA	NA	NA	NA	NA	2.8E-05	1.1E-05	1.9E-06	1.4E-06	NA	5.6E-08
beryllium	1.3E-11	4.3E-10	9.1E-11	1.9E-12	3.2E-07	2.7E-07	5.7E-09	1.9E-06	1.9E-07	NA	6.1E-07	2.1E-07	1.6E-08	3.4E-10	NA	1.2E-09
cadmium	4.2E-11	2.1E-08	2.6E-09	1.1E-07	2.4E-05	3.2E-06	1.4E-04	1.4E-06	1.4E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.0E-10	9.2E-09	6.9E-09	4.4E-08	NA	NA	NA	NA	NA	NA	4.6E-05	2.4E-05	5.6E-06	3.6E-05	NA	1.8E-07
nickel	2.4E-10	5.6E-08	2.4E-08	9.4E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	6.0E-17	2.8E-15	5.0E-19	3.8E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.9E-13	3.8E-12	3.0E-13	4.0E-12	2.3E-06	4.3E-07	5.6E-06	7.7E-07	3.1E-08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.7E-14	2.4E-12	1.2E-14	8.8E-14	3.2E-07	1.7E-09	1.2E-08	7.7E-09	2.3E-08	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.5E-16	1.2E-14	1.2E-18	9.3E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E-14	1.2E-12	1.0E-17	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	4.8E-14	1.2E-12	3.6E-15	3.0E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.2E-15	3.9E-14	8.4E-19	6.7E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.0E-08	1.4E-06	4.5E-09	3.4E-08	1.0E-07	4.2E-10	3.1E-09	2.2E-09	8.8E-09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.2E-08	5.0E-06	1.8E-09	1.3E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.9E-13	1.1E-11	6.1E-12	4.6E-11	1.7E-07	1.9E-07	1.4E-06	7.3E-08	2.2E-07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.3E-13	1.1E-11	1.8E-11	1.3E-10	8.7E-08	3.3E-07	2.4E-06	6.7E-08	2.0E-07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.4E-13	1.2E-11	1.9E-11	1.4E-10	9.2E-08	3.6E-07	2.7E-06	7.2E-08	2.2E-07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.4E-13	9.1E-12	8.4E-11	6.2E-10	4.1E-08	1.5E-06	1.1E-05	8.4E-08	2.5E-07	NA	NA	NA	NA	NA	NA	NA
chrysene	4.3E-13	1.2E-11	6.9E-12	5.1E-11	2.3E-07	2.4E-07	1.8E-06	9.6E-08	2.9E-07	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E-13	3.2E-12	2.7E-11	2.0E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.0E-13	7.8E-12	3.6E-11	2.7E-10	3.8E-08	6.1E-07	4.5E-06	5.5E-08	1.6E-07	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	9.3E-13	9.1E-11	2.4E-10	1.7E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	7.1E-15	3.0E-13	1.5E-11	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.5E-15	1.1E-13	6.8E-13	5.1E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	2.2E-15	6.2E-14	4.1E-14	3.0E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.3E-16	8.8E-15	3.6E-15	2.7E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.0E-16	1.7E-14	7.4E-16	5.5E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.8E-17	9.3E-16	3.2E-13	2.7E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.4E-17	3.5E-16	1.8E-13	1.5E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-33f
INTAKES FOR CARCINOGENS FOR ON-PROPERTY CHILD
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	1.8E-03	6.1E-02	9.8E-02	8.0E-01	1.6E+03	6.0E+03	4.9E+04	4.6E+02	NA	3.4E+00	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.1E-04	2.2E-02	1.8E-04	3.7E-04	5.1E+02	2.0E+01	4.2E+01	4.5E+02	NA	3.4E+00	5.3E+02	1.7E+02	7.8E-01	1.7E+00	NA	NA
Pu_{238}	1.0E-02	2.6E-01	8.6E-06	4.0E-05	6.4E-01	4.8E-03	2.2E-02	1.3E+02	NA	9.3E-01	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.3E-03	6.0E-02	5.0E-06	2.4E-05	6.4E-01	4.8E-03	2.2E-02	1.3E+02	NA	9.3E-01	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.3E-01	1.6E+01	8.0E-01	3.4E+01	2.5E+03	6.6E+02	2.8E+04	1.5E+04	NA	1.1E+02	2.5E+04	8.0E+03	1.7E+02	7.2E+03	NA	NA
Ru_{106}	4.6E-03	1.2E-01	1.0E-02	7.6E-05	2.9E+03	1.4E+03	1.0E+01	1.3E+03	NA	9.6E+00	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.8E-03	1.6E-01	1.3E-02	1.5E+00	1.8E+04	3.4E+03	4.0E+05	6.3E+02	NA	4.7E+00	7.0E+03	3.2E+03	1.5E+02	1.7E+04	NA	NA
Tc_{99}	1.9E-02	5.5E-01	3.9E-01	1.1E+01	8.6E+04	3.0E+05	8.1E+06	5.0E+02	NA	3.7E+00	6.9E+05	2.0E+05	9.3E+04	2.6E+06	NA	NA
Th_{230}	6.9E-01	1.8E+01	2.1E-02	4.0E-01	1.4E+02	7.1E+00	1.4E+02	1.5E+04	NA	1.1E+02	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.4E-02	1.2E+00	1.3E-03	2.6E-02	1.0E+01	5.0E-01	9.8E+00	1.1E+03	NA	7.9E+00	NA	NA	NA	NA	NA	NA
U_{234}	1.0E+00	2.7E+01	2.7E-01	1.9E+01	6.2E+03	3.7E+02	2.6E+04	1.4E+04	NA	1.0E+02	1.2E+05	3.2E+04	2.1E+02	1.6E+04	NA	NA
$U_{235/236}$	9.9E-02	2.6E+00	2.7E-02	1.9E+00	2.7E+02	1.6E+01	1.1E+03	5.9E+02	NA	4.4E+00	5.6E+03	1.5E+03	9.7E+00	7.1E+02	NA	NA
U_{238+2d}	1.2E+00	3.2E+01	3.3E-01	2.3E+01	1.4E+04	8.1E+02	5.7E+04	3.0E+04	NA	2.2E+02	1.2E+05	3.1E+04	2.1E+02	1.5E+04	NA	NA
Rn_{222+4d}	6.9E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	3.8E-10	1.4E-08	4.9E-09	3.4E-09	7.5E-06	7.9E-06	5.6E-06	1.1E-05	1.1E-07	NA	9.3E-06	3.5E-06	6.4E-07	4.5E-07	NA	1.9E-08
beryllium	2.0E-11	6.4E-10	1.4E-10	2.9E-12	1.4E-07	1.2E-07	2.5E-09	8.1E-07	8.1E-08	NA	1.4E-07	4.8E-08	3.7E-09	7.9E-11	NA	2.8E-10
cadmium	1.2E-10	6.0E-08	7.5E-09	3.2E-07	1.1E-04	1.4E-05	6.1E-04	6.4E-06	6.4E-07	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.9E-10	1.8E-08	1.4E-08	8.7E-08	8.6E-06	1.2E-05	7.5E-05	1.7E-05	1.7E-06	NA	6.7E-06	3.5E-06	8.2E-07	5.3E-06	NA	2.7E-08
nickel	5.3E-10	1.3E-07	5.4E-08	2.1E-07	1.7E-04	7.5E-05	2.9E-04	2.5E-05	1.2E-07	NA	NA	NA	NA	NA	NA	NA
benzene	8.2E-17	3.9E-15	6.9E-19	5.2E-18	8.4E-07	1.7E-10	1.3E-09	3.3E-09	1.6E-11	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.0E-13	2.1E-12	1.7E-13	2.2E-12	1.2E-05	2.2E-06	3.0E-05	4.1E-06	1.6E-07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.7E-14	2.4E-12	1.2E-14	8.8E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.1E-16	1.4E-14	1.4E-18	1.1E-17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E-14	1.7E-12	1.5E-17	1.8E-16	2.1E-05	2.5E-10	2.9E-09	3.1E-08	9.2E-08	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	1.6E-13	4.2E-12	1.2E-14	1.0E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	1.6E-15	5.5E-14	1.2E-18	9.6E-18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E-07	9.6E-06	3.1E-08	2.3E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.4E-07	3.3E-05	1.2E-08	8.7E-08	1.2E-06	4.7E-10	3.5E-09	6.6E-09	2.0E-08	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.6E-13	9.8E-12	5.6E-12	4.2E-11	3.3E-06	3.6E-06	2.7E-05	1.4E-06	4.3E-06	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.1E-13	1.1E-11	1.7E-11	1.3E-10	1.4E-06	5.2E-06	3.9E-05	1.1E-06	3.2E-06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.1E-13	1.1E-11	1.8E-11	1.3E-10	3.3E-06	1.3E-05	9.9E-05	2.6E-06	7.9E-06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.9E-13	1.1E-11	9.7E-11	7.2E-10	3.3E-08	1.2E-06	8.9E-06	6.7E-08	2.0E-07	NA	NA	NA	NA	NA	NA	NA
chrysene	3.6E-13	9.9E-12	5.8E-12	4.3E-11	2.8E-06	3.1E-06	2.3E-05	1.2E-06	3.6E-06	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E-13	3.0E-12	2.6E-11	1.9E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.6E-13	6.8E-12	3.2E-11	2.4E-10	3.0E-08	4.8E-07	3.6E-06	4.4E-08	1.3E-07	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	4.9E-13	4.8E-11	1.2E-10	9.2E-10	2.2E-08	6.8E-08	5.0E-07	1.5E-08	9.2E-09	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	9.9E-15	4.2E-13	2.0E-11	1.5E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	1.5E-15	1.1E-13	6.6E-13	4.9E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	8.2E-16	2.3E-14	1.5E-14	1.1E-13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.6E-16	1.7E-14	7.2E-15	5.4E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.8E-16	1.3E-14	5.9E-16	4.4E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-16	2.9E-15	1.0E-12	8.4E-12	4.3E-11	6.5E-07	5.4E-06	9.9E-10	3.0E-10	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.1E-17	5.1E-16	2.6E-13	2.2E-12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–33g
INTAKES FOR CARCINOGENS FOR ON–PROPERTY CHILD
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		
Cs_{137+1d}	2.1E−03	7.0E−02	1.1E−01	9.1E−01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.9E−04	2.1E−02	1.7E−04	3.6E−04	NA	NA	NA	NA	NA	NA	1.3E+03	4.1E+02	1.9E+00	4.1E+00	NA	NA
Pu_{238}	3.2E−02	8.2E−01	2.7E−05	1.3E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.0E−03	1.0E−01	8.7E−06	4.1E−05	3.6E+00	2.7E−02	1.3E−01	7.1E+02	NA	5.3E+00	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4E+04	1.1E+04	2.2E+02	9.6E+03	NA	NA
Ru_{106}	1.1E−03	2.8E−02	2.5E−03	1.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	6.5E−03	2.7E−01	2.2E−02	2.6E+00	2.0E+04	3.8E+03	4.5E+05	7.1E+02	NA	5.2E+00	2.8E+04	1.3E+04	6.0E+02	7.0E+04	NA	NA
Tc_{99}	7.8E−02	2.2E+00	1.6E+00	4.4E+01	NA	NA	NA	NA	NA	NA	1.4E+07	4.2E+06	1.9E+06	5.4E+07	NA	NA
Th_{230}	2.5E+00	6.7E+01	7.5E−02	1.5E+00	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.8E+00	1.0E+02	1.0E+00	7.2E+01	6.9E+02	4.1E+01	2.9E+03	1.5E+03	NA	1.1E+01	6.5E+06	1.7E+06	1.1E+04	8.3E+05	NA	NA
$U_{235/236}$	2.9E−01	7.7E+00	8.0E−02	5.6E+00	1.5E+02	9.1E+00	6.4E+02	3.4E+02	NA	2.5E+00	3.0E+05	7.8E+04	5.2E+02	3.8E+04	NA	NA
U_{238+2d}	3.8E+00	1.0E+02	1.0E+00	7.2E+01	5.1E+02	3.0E+01	2.1E+03	1.1E+03	NA	8.4E+00	6.3E+06	1.7E+06	1.1E+04	8.1E+05	NA	NA
Rn_{222+4d}	4.2E+03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	1.6E−10	5.8E−09	2.1E−09	1.5E−09	9.9E−06	1.1E−05	7.4E−06	1.5E−05	1.5E−07	NA	3.1E−05	1.2E−05	2.1E−06	1.5E−06	NA	6.2E−08
beryllium	1.8E−11	5.7E−10	1.2E−10	2.6E−12	1.4E−07	1.2E−07	2.4E−09	8.0E−07	8.0E−08	NA	6.5E−07	2.2E−07	1.7E−08	3.6E−10	NA	1.3E−09
cadmium	6.6E−11	3.3E−08	4.1E−09	1.8E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.1E−10	1.5E−08	1.1E−08	7.0E−08	2.4E−05	3.3E−05	2.1E−04	4.7E−05	4.7E−06	NA	5.9E−05	3.0E−05	7.2E−06	4.6E−05	NA	2.3E−07
nickel	3.4E−10	8.1E−08	3.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	9.3E−17	4.4E−15	7.8E−19	5.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.3E−13	2.5E−12	2.1E−13	2.7E−12	2.0E−07	3.8E−08	5.0E−07	6.8E−08	2.7E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	5.5E−14	4.8E−12	2.4E−14	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E−16	2.0E−14	2.0E−18	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.3E−14	2.2E−12	1.9E−17	2.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	4.4E−14	1.1E−12	3.3E−15	2.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	1.8E−15	5.9E−14	1.3E−18	1.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E−08	1.2E−06	4.0E−09	3.0E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	7.1E−08	4.3E−06	1.5E−09	1.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.4E−13	1.4E−11	2.2E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.5E−13	1.4E−11	2.3E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.8E−13	1.3E−11	1.2E−10	8.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.7E−13	1.3E−11	7.6E−12	5.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.7E−13	4.5E−12	3.9E−11	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.5E−13	9.2E−12	4.3E−11	3.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	9.9E−13	9.6E−11	2.5E−10	1.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	1.1E−14	4.6E−13	2.3E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.8E−15	1.3E−13	7.8E−13	5.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	2.0E−15	5.8E−14	3.8E−14	2.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.0E−16	7.9E−15	3.3E−15	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.5E−16	1.5E−14	6.7E−16	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.8E−17	9.3E−16	3.2E−13	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.2E−17	5.5E−16	2.8E−13	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34a
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.5E−10	1.4E−08	4.6E−14	3.4E−13	3.0E−02	1.1E−07	8.0E−07	1.1E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
aluminum	4.6E−06	1.2E−04	NA	NA	NA	NA	NA	1.6E−01	1.6E−02	NA	NA	NA	NA	NA	NA	NA
antimony	1.1E−08	8.9E−07	2.9E−07	6.8E−07	1.0E−03	4.6E−04	1.1E−03	3.0E−04	3.0E−05	NA	2.4E−03	2.3E−03	3.9E−04	9.1E−04	NA	4.7E−06
arsenic	4.6E−09	1.6E−07	5.9E−08	4.2E−08	9.5E−05	1.0E−04	7.1E−05	1.4E−04	1.4E−06	NA	6.2E−04	2.3E−04	4.2E−05	3.0E−05	NA	1.2E−06
barium	8.4E−08	7.6E−06	5.7E−07	3.1E−05	5.1E−03	5.2E−04	2.8E−02	3.0E−03	3.0E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	5.1E−10	1.7E−08	3.5E−09	7.5E−11	2.6E−06	2.2E−06	4.7E−08	1.5E−05	1.5E−06	NA	2.7E−09	9.4E−10	7.1E−11	1.5E−12	NA	5.5E−12
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.9E−09	9.7E−07	1.2E−07	5.2E−06	1.1E−03	1.5E−04	6.4E−03	6.7E−05	6.7E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.7E−09	4.5E−07	3.4E−07	2.2E−06	1.8E−04	2.4E−04	1.6E−03	3.5E−04	3.5E−05	NA	1.9E−05	1.0E−05	2.3E−06	1.5E−05	NA	7.7E−08
cobalt	4.8E−09	2.4E−07	7.2E−07	1.7E−06	1.2E−04	6.6E−04	1.6E−03	1.5E−04	1.5E−05	NA	NA	NA	NA	NA	NA	NA
copper	1.6E−08	4.6E−06	4.6E−06	1.6E−05	1.6E−02	1.6E−02	5.7E−02	5.5E−04	5.5E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.8E−07	1.3E−05	1.1E−06	2.1E−05	1.6E−03	1.9E−04	3.7E−03	1.6E−03	1.6E−04	NA	NA	NA	NA	NA	NA	NA
magnesium	1.2E−05	5.7E−04	2.3E−04	4.3E−03	3.3E+00	1.9E+00	3.6E+01	5.2E−02	5.2E−03	NA	2.6E+01	1.4E+01	3.1E+00	5.9E+01	NA	5.2E−02
manganese	4.4E−07	4.4E−05	4.5E−06	9.3E−05	4.2E−02	5.6E−03	1.1E−01	7.4E−03	7.4E−04	NA	1.5E−01	1.8E−01	9.4E−03	1.9E−01	NA	3.0E−04
mercury	2.8E−10	1.2E−08	4.3E−07	1.8E−08	1.9E−04	1.4E−02	5.9E−04	8.5E−06	4.3E−06	NA	NA	NA	NA	NA	NA	NA
molybdenum	4.1E−09	2.9E−07	3.3E−07	1.9E−06	6.6E−04	1.1E−03	6.4E−03	9.7E−05	9.7E−06	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E−08	2.6E−06	1.1E−06	4.4E−06	2.2E−03	1.0E−03	3.9E−03	3.3E−04	1.6E−06	NA	NA	NA	NA	NA	NA	NA
selenium	6.1E−10	7.2E−08	8.7E−08	5.5E−07	3.2E−05	4.2E−05	2.6E−04	1.1E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
silver	4.2E−09	7.2E−07	5.0E−07	7.7E−05	6.9E−04	5.4E−04	8.5E−02	6.1E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.5E−10	4.2E−09	3.2E−08	3.8E−08	2.7E−07	2.4E−05	2.8E−05	5.8E−06	5.8E−07	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.3E−06	3.5E−05	3.6E−07	2.5E−05	5.4E−03	3.2E−04	2.2E−02	1.2E−02	1.2E−03	NA	1.8E−01	4.6E−02	3.1E−04	2.2E−02	NA	3.5E−04
vanadium	1.2E−08	4.4E−07	1.5E−07	2.9E−08	1.2E−04	9.8E−05	1.8E−05	3.5E−04	3.5E−06	NA	NA	NA	NA	NA	NA	NA
zinc	6.4E−08	2.9E−04	3.1E−03	7.2E−03	1.8E−01	2.0E+00	4.6E+00	1.8E−03	1.8E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.3E−12	1.1E−10	8.7E−12	1.1E−10	1.1E−05	2.0E−06	2.7E−05	3.7E−06	1.5E−07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.2E−14	1.1E−12	1.1E−16	8.7E−16	3.6E−05	4.5E−09	3.6E−08	1.2E−07	3.5E−07	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	3.9E−05	1.8E−09	1.4E−08	6.5E−08	1.9E−07	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.3E−05	2.3E−09	1.8E−08	5.2E−08	1.6E−07	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.1E−04	3.5E−05	2.6E−04	3.5E−05	1.0E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.3E−12	1.0E−10	8.8E−16	1.0E−14	1.5E−04	1.8E−09	2.2E−08	2.3E−07	6.9E−07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.2E−04	3.6E−05	2.7E−04	2.7E−05	8.0E−05	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.0E−04	1.9E−05	1.5E−04	3.1E−05	9.2E−05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E−06	5.1E−05	1.6E−07	1.2E−06	1.3E−05	5.4E−08	4.0E−07	2.8E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	4.2E−05	1.9E−08	1.5E−07	2.6E−07	7.8E−07	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.0E−13	7.5E−12	4.7E−11	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E−14	1.1E−12	4.7E−14	3.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-34b
INTAKES FOR TOXICANTS FOR ON-PROPERTY CHILD
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	4.9E-11	2.8E-09	9.0E-15	6.7E-14	1.9E-02	6.7E-08	5.0E-07	6.8E-06	6.8E-07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E-06	3.1E-05	NA	NA	NA	NA	NA	1.3E-01	1.3E-02	NA	NA	NA	NA	NA	NA	NA
antimony	2.6E-09	2.2E-07	7.0E-08	1.6E-07	1.4E-04	6.2E-05	1.5E-04	4.1E-05	4.1E-06	NA	1.4E-05	1.4E-05	2.3E-06	5.3E-06	NA	2.8E-08
arsenic	1.2E-09	4.3E-08	1.6E-08	1.1E-08	NA	NA	NA	NA	NA	NA	8.7E-05	3.3E-05	5.9E-06	4.2E-06	NA	1.7E-07
barium	1.3E-08	1.2E-06	9.1E-08	5.0E-06	2.2E-03	2.2E-04	1.2E-02	1.3E-03	1.3E-04	NA	NA	NA	NA	NA	NA	NA
beryllium	1.3E-10	4.2E-09	8.9E-10	1.9E-11	3.5E-06	3.0E-06	6.3E-08	2.0E-05	2.0E-06	NA	2.5E-20	8.5E-21	6.5E-22	1.4E-23	NA	5.0E-23
boron	NA	NA	NA	NA	4.1E-02	4.3E-03	1.9E-01	1.8E-04	1.8E-05	NA	NA	NA	NA	NA	NA	NA
cadmium	7.0E-10	3.5E-07	4.4E-08	1.9E-06	3.7E-04	4.9E-05	2.1E-03	2.2E-05	2.2E-06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.4E-09	1.1E-07	8.3E-08	5.3E-07	9.3E-05	1.3E-04	8.1E-04	1.8E-04	1.8E-05	NA	3.8E-07	1.9E-07	4.6E-08	3.0E-07	NA	1.5E-09
cobalt	1.4E-09	6.9E-08	2.1E-07	4.9E-07	1.2E-04	6.7E-04	1.6E-03	1.5E-04	1.5E-05	NA	NA	NA	NA	NA	NA	NA
copper	3.3E-09	9.5E-07	9.4E-07	3.3E-06	5.9E-03	6.2E-03	2.2E-02	2.1E-04	2.1E-06	NA	NA	NA	NA	NA	NA	NA
lead	1.4E-08	1.0E-06	8.1E-08	1.6E-06	3.0E-04	3.5E-05	6.8E-04	2.9E-04	2.9E-05	NA	NA	NA	NA	NA	NA	NA
magnesium	4.0E-06	1.9E-04	7.5E-05	1.4E-03	1.4E+01	8.2E+00	1.5E+02	2.3E-01	2.3E-02	NA	1.3E+01	6.8E+00	1.5E+00	2.9E+01	NA	2.6E-02
manganese	1.2E-07	1.1E-05	1.2E-06	2.4E-05	6.9E-02	9.1E-03	1.9E-01	1.2E-02	1.2E-03	NA	2.7E-02	3.2E-02	1.7E-03	3.5E-02	NA	5.5E-05
mercury	2.2E-11	9.3E-10	3.3E-08	1.4E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.0E-09	7.2E-08	8.4E-08	4.9E-07	1.0E-03	1.7E-03	9.9E-03	1.5E-04	1.5E-05	NA	NA	NA	NA	NA	NA	NA
nickel	3.2E-09	7.6E-07	3.3E-07	1.3E-06	1.5E-03	6.6E-04	2.6E-03	2.2E-04	1.1E-06	NA	NA	NA	NA	NA	NA	NA
selenium	1.2E-10	1.4E-08	1.7E-08	1.0E-07	2.8E-05	3.7E-05	2.3E-04	9.8E-06	9.8E-07	NA	NA	NA	NA	NA	NA	NA
silver	1.2E-09	2.0E-07	1.4E-07	2.1E-05	5.7E-04	4.4E-04	7.0E-02	5.0E-05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.6E-11	1.6E-09	1.2E-08	1.4E-08	3.9E-07	3.5E-05	4.1E-05	8.6E-06	8.6E-07	NA	NA	NA	NA	NA	NA	NA
uranium-total	8.9E-08	2.4E-06	2.4E-08	1.7E-06	8.6E-05	5.1E-06	3.6E-04	1.9E-04	1.9E-05	NA	4.1E-04	1.1E-04	7.1E-07	5.2E-05	NA	8.1E-07
vanadium	3.1E-09	1.2E-07	4.1E-08	7.7E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	4.1E-08	1.8E-04	2.0E-03	4.6E-03	8.9E-02	9.5E-01	2.2E+00	8.7E-04	8.7E-05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-12	2.6E-11	2.1E-12	2.7E-11	2.2E-05	4.2E-06	5.5E-05	7.5E-06	3.0E-07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.0E-15	2.4E-13	2.4E-17	1.9E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.2E-05	2.1E-06	1.5E-05	2.0E-06	6.1E-06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-13	6.5E-12	5.6E-17	6.6E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	7.4E-06	2.2E-06	1.7E-05	1.7E-06	5.0E-06	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.2E-05	7.7E-07	5.8E-06	1.2E-06	3.6E-06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.0E-06	2.5E-04	7.9E-07	5.9E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	2.0E-14	1.4E-12	8.8E-12	6.5E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-15	9.1E-14	4.0E-15	3.0E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34c
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.4E–10	8.2E–09	2.6E–14	1.9E–13	1.9E–02	6.8E–08	5.1E–07	6.9E–06	6.9E–07	NA	NA	NA	NA	NA	NA	NA
aluminum	2.3E–06	5.9E–05	NA	NA	NA	NA	NA	1.4E–01	1.4E–02	NA	NA	NA	NA	NA	NA	NA
antimony	3.7E–09	3.1E–07	1.0E–07	2.4E–07	2.2E–04	1.0E–04	2.3E–04	6.5E–05	6.5E–06	NA	2.6E–03	2.6E–03	4.2E–04	9.9E–04	NA	5.2E–06
arsenic	2.3E–09	8.2E–08	2.9E–08	2.1E–08	NA	NA	NA	NA	NA	NA	3.0E–04	1.1E–04	2.0E–05	1.4E–05	NA	5.9E–07
barium	3.2E–08	2.9E–06	2.2E–07	1.2E–05	2.9E–03	3.0E–04	1.6E–02	1.7E–03	1.7E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	2.8E–10	9.3E–09	2.0E–09	4.1E–11	2.1E–06	1.8E–06	3.8E–08	1.2E–05	1.2E–06	NA	1.0E–13	3.5E–14	2.7E–15	5.7E–17	NA	2.0E–16
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.2E–09	5.8E–07	7.3E–08	3.1E–06	5.2E–04	6.8E–05	2.9E–03	3.0E–05	3.0E–06	NA	NA	NA	NA	NA	NA	NA
chromium vi	5.0E–09	2.3E–07	1.8E–07	1.1E–06	1.0E–04	1.4E–04	8.9E–04	2.0E–04	2.0E–05	NA	8.2E–06	4.3E–06	1.0E–06	6.5E–06	NA	3.3E–08
cobalt	2.5E–09	1.2E–07	3.7E–07	8.7E–07	1.5E–04	8.0E–04	1.9E–03	1.8E–04	1.8E–05	NA	NA	NA	NA	NA	NA	NA
copper	1.0E–08	3.0E–06	3.0E–06	1.0E–05	7.3E–03	7.6E–03	2.7E–02	2.6E–04	2.6E–06	NA	NA	NA	NA	NA	NA	NA
lead	1.0E–07	7.4E–06	5.9E–07	1.2E–05	1.0E–03	1.2E–04	2.3E–03	1.0E–03	1.0E–04	NA	NA	NA	NA	NA	NA	NA
magnesium	7.6E–06	3.6E–04	1.4E–04	2.6E–03	4.0E+01	2.3E+01	4.4E+02	6.4E–01	6.4E–02	NA	1.6E+01	8.5E+00	1.9E+00	3.6E+01	NA	3.2E–02
manganese	2.4E–07	2.4E–05	2.5E–06	5.1E–05	1.3E–01	1.8E–02	3.6E–01	2.3E–02	2.3E–03	NA	5.2E–02	6.1E–02	3.2E–03	6.6E–02	NA	1.0E–04
mercury	9.2E–11	3.9E–09	1.4E–07	6.0E–09	3.5E–05	2.5E–03	1.1E–04	1.5E–06	7.7E–07	NA	NA	NA	NA	NA	NA	NA
molybdenum	2.2E–09	1.5E–07	1.8E–07	1.0E–06	9.8E–04	1.6E–03	9.5E–03	1.4E–04	1.4E–05	NA	NA	NA	NA	NA	NA	NA
nickel	5.8E–09	1.4E–06	6.0E–07	2.3E–06	1.8E–03	8.0E–04	3.1E–03	2.6E–04	1.3E–06	NA	NA	NA	NA	NA	NA	NA
selenium	1.9E–10	2.2E–08	2.7E–08	1.7E–07	1.9E–05	2.6E–05	1.6E–04	6.8E–06	6.8E–07	NA	NA	NA	NA	NA	NA	NA
silver	1.8E–09	3.1E–07	2.2E–07	3.4E–05	1.9E–04	1.5E–04	2.3E–02	1.7E–05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	9.1E–11	2.5E–09	1.9E–08	2.3E–08	4.1E–07	3.7E–05	4.3E–05	9.1E–06	9.1E–07	NA	NA	NA	NA	NA	NA	NA
uranium–total	3.6E–07	9.6E–06	9.9E–08	7.0E–06	1.4E–03	8.2E–05	5.8E–03	3.1E–03	3.1E–04	NA	9.3E–02	2.5E–02	1.6E–04	1.2E–02	NA	1.9E–04
vanadium	5.9E–09	2.3E–07	7.9E–08	1.5E–08	1.4E–04	1.1E–04	2.1E–05	4.0E–04	4.0E–06	NA	NA	NA	NA	NA	NA	NA
zinc	6.1E–08	2.7E–04	2.9E–03	6.9E–03	4.0E–01	4.3E+00	1.0E+01	3.9E–03	3.9E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	5.1E–12	1.0E–10	8.3E–12	1.1E–10	3.6E–06	6.8E–07	8.9E–06	1.2E–06	4.9E–08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.4E–14	1.1E–12	1.1E–16	9.1E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.8E–05	6.3E–06	4.7E–05	6.3E–06	1.9E–05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.2E–12	1.2E–10	1.1E–15	1.3E–14	2.8E–04	3.4E–09	4.0E–08	4.2E–07	1.3E–06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	4.6E–05	1.4E–05	1.0E–04	1.0E–05	3.1E–05	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	3.4E–05	2.2E–06	1.6E–05	3.4E–06	1.0E–05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E–06	5.6E–05	1.8E–07	1.3E–06	1.1E–05	4.3E–08	3.2E–07	2.3E–07	9.0E–07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	7.7E–14	5.5E–12	3.4E–11	2.5E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.9E–15	2.2E–13	9.6E–15	7.2E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34d
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	8.3E−11	4.8E−09	1.5E−14	1.1E−13	2.1E−02	7.6E−08	5.6E−07	7.6E−06	7.6E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.3E−06	3.3E−05	NA	NA	NA	NA	NA	1.1E−01	1.1E−02	NA	NA	NA	NA	NA	NA	NA
antimony	2.0E−09	1.7E−07	5.4E−08	1.3E−07	4.6E−04	2.1E−04	4.8E−04	1.4E−04	1.4E−05	NA	1.9E−04	1.8E−04	3.0E−05	7.2E−05	NA	3.7E−07
arsenic	1.3E−09	4.5E−08	1.6E−08	1.1E−08	NA	NA	NA	NA	NA	NA	3.6E−04	1.4E−04	2.5E−05	1.8E−05	NA	7.3E−07
barium	1.9E−08	1.7E−06	1.3E−07	6.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E−10	5.0E−09	1.1E−09	2.2E−11	3.0E−06	2.6E−06	5.5E−08	1.8E−05	1.8E−06	NA	7.6E−06	2.6E−06	2.0E−07	4.2E−09	NA	1.5E−08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E−10	2.4E−07	3.1E−08	1.3E−06	6.1E−04	8.0E−05	3.4E−03	3.6E−05	3.6E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.4E−09	1.1E−07	8.5E−08	5.4E−07	8.7E−05	1.2E−04	7.6E−04	1.7E−04	1.7E−05	NA	6.8E−04	3.5E−04	8.3E−05	5.4E−04	NA	2.7E−06
cobalt	1.3E−09	6.2E−08	1.9E−07	4.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.1E−09	1.5E−06	1.5E−06	5.1E−06	4.9E−03	5.2E−03	1.8E−02	1.7E−04	1.7E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.0E−07	7.4E−06	5.9E−07	1.2E−05	8.0E−04	9.4E−05	1.8E−03	7.9E−04	7.9E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	3.8E−06	1.8E−04	7.1E−05	1.3E−03	1.4E+01	8.3E+00	1.6E+02	2.3E−01	2.3E−02	NA	8.6E+01	4.5E+01	1.0E+01	1.9E+02	NA	1.7E−01
manganese	1.3E−07	1.3E−05	1.3E−06	2.7E−05	NA	NA	NA	NA	NA	NA	8.6E−02	1.0E−01	5.3E−03	1.1E−01	NA	1.7E−04
mercury	5.1E−11	2.2E−09	7.8E−08	3.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	9.6E−10	6.8E−08	7.9E−08	4.6E−07	7.1E−04	1.2E−03	7.0E−03	1.0E−04	1.0E−05	NA	NA	NA	NA	NA	NA	NA
nickel	2.7E−09	6.5E−07	2.8E−07	1.1E−06	1.3E−03	5.8E−04	2.3E−03	1.9E−04	9.6E−07	NA	NA	NA	NA	NA	NA	NA
selenium	1.2E−10	1.4E−08	1.7E−08	1.0E−07	2.9E−05	3.9E−05	2.4E−04	1.0E−05	1.0E−06	NA	NA	NA	NA	NA	NA	NA
silver	9.6E−10	1.7E−07	1.1E−07	1.8E−05	1.3E−03	9.9E−04	1.6E−01	1.1E−04	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.5E−11	9.6E−10	7.4E−09	8.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.3E−07	8.6E−06	8.9E−08	6.2E−06	8.1E−05	4.8E−06	3.4E−04	1.8E−04	1.8E−05	NA	5.8E−01	1.5E−01	1.0E−03	7.4E−02	NA	1.2E−03
vanadium	3.1E−09	1.2E−07	4.2E−08	7.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.5E−08	6.9E−05	7.4E−04	1.7E−03	8.1E−02	8.7E−01	2.0E+00	8.0E−04	8.0E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.3E−12	2.7E−11	2.2E−12	2.9E−11	1.9E−06	3.6E−07	4.8E−06	6.5E−07	2.6E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.0E−15	2.0E−13	2.0E−17	1.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E−13	2.0E−11	1.7E−16	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.4E−06	1.0E−06	7.6E−06	7.5E−07	2.3E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.8E−07	1.3E−05	4.3E−08	3.2E−07	1.8E−06	7.3E−09	5.5E−08	3.8E−08	1.5E−07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.9E−14	1.4E−12	8.5E−12	6.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.4E−15	1.8E−13	7.8E−15	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34e
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	6.1E−11	3.5E−09	1.1E−14	8.3E−14	1.6E−02	5.6E−08	4.1E−07	5.6E−06	5.6E−07	NA	NA	NA	NA	NA	NA	NA
aluminum	1.2E−06	3.1E−05	NA	NA	NA	NA	NA	1.2E−01	1.2E−02	NA	NA	NA	NA	NA	NA	NA
antimony	2.4E−09	2.0E−07	6.5E−08	1.5E−07	NA	NA	NA	NA	NA	NA	7.8E−04	7.7E−04	1.3E−04	3.0E−04	NA	1.6E−06
arsenic	1.5E−09	5.2E−08	1.9E−08	1.3E−08	NA	NA	NA	NA	NA	NA	3.3E−04	1.2E−04	2.2E−05	1.6E−05	NA	6.6E−07
barium	2.0E−08	1.8E−06	1.3E−07	7.3E−06	2.2E−03	2.2E−04	1.2E−02	1.3E−03	1.3E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E−10	5.0E−09	1.1E−09	2.2E−11	3.7E−06	3.2E−06	6.7E−08	2.2E−05	2.2E−06	NA	7.2E−06	2.5E−06	1.9E−07	4.0E−09	NA	1.4E−08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E−10	2.4E−07	3.1E−08	1.3E−06	2.8E−04	3.7E−05	1.6E−03	1.7E−05	1.7E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.3E−09	1.1E−07	8.1E−08	5.2E−07	NA	NA	NA	NA	NA	NA	5.3E−04	2.8E−04	6.5E−05	4.2E−04	NA	2.1E−06
cobalt	1.3E−09	6.2E−08	1.9E−07	4.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	3.5E−09	1.0E−06	1.0E−06	3.5E−06	5.0E−03	5.2E−03	1.8E−02	1.8E−04	1.8E−06	NA	NA	NA	NA	NA	NA	NA
lead	3.8E−08	2.8E−06	2.2E−07	4.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	3.3E−06	1.5E−04	6.1E−05	1.1E−03	NA	NA	NA	NA	NA	NA	5.5E+01	2.9E+01	6.5E+00	1.2E+02	NA	1.1E−01
manganese	1.3E−07	1.3E−05	1.4E−06	2.8E−05	9.0E−02	1.2E−02	2.5E−01	1.6E−02	1.6E−03	NA	7.5E−02	8.9E−02	4.7E−03	9.6E−02	NA	1.5E−04
mercury	5.6E−11	2.4E−09	8.6E−08	3.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	8.9E−10	6.3E−08	7.3E−08	4.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	2.7E−09	6.5E−07	2.8E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.4E−10	1.7E−08	2.0E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	9.6E−10	1.7E−07	1.1E−07	1.8E−05	7.0E−05	5.5E−05	8.6E−03	6.1E−06	NA	NA	NA	NA	NA	NA	NA	NA
thallium	3.6E−11	1.0E−09	7.8E−09	9.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.7E−07	9.8E−06	1.0E−07	7.1E−06	5.5E−04	3.3E−05	2.3E−03	1.2E−03	1.2E−04	NA	4.0E−01	1.1E−01	7.0E−04	5.1E−02	NA	8.0E−04
vanadium	3.0E−09	1.2E−07	4.0E−08	7.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.5E−08	6.6E−05	7.1E−04	1.7E−03	1.1E−01	1.2E+00	2.8E+00	1.1E−03	1.1E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	2.2E−12	4.4E−11	3.5E−12	4.7E−11	2.6E−05	5.0E−06	6.5E−05	8.9E−06	3.6E−07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.0E−15	1.4E−13	1.4E−17	1.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.5E−05	2.4E−06	1.8E−05	2.4E−06	7.3E−06	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.8E−13	1.4E−11	1.2E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	8.5E−06	2.6E−06	1.9E−05	1.9E−06	5.8E−06	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	1.4E−05	8.9E−07	6.7E−06	1.4E−06	4.2E−06	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E−07	1.6E−05	5.3E−08	3.9E−07	1.2E−06	4.9E−09	3.7E−08	2.6E−08	1.0E−07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.8E−14	1.3E−12	8.0E−12	5.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.0E−15	2.0E−13	8.6E−15	6.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34f
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	7.7E−11	4.4E−09	1.4E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	2.4E−06	6.1E−05	NA	NA	NA	NA	NA	1.3E−01	1.3E−02	NA	NA	NA	NA	NA	NA	NA
antimony	7.0E−09	5.9E−07	1.9E−07	4.5E−07	1.3E−03	5.9E−04	1.4E−03	3.9E−04	3.9E−05	NA	3.0E−03	2.9E−03	4.9E−04	1.1E−03	NA	5.9E−06
arsenic	4.5E−09	1.6E−07	5.7E−08	4.0E−08	8.7E−05	9.3E−05	6.5E−05	1.3E−04	1.3E−06	NA	1.1E−04	4.1E−05	7.4E−06	5.3E−06	NA	2.2E−07
barium	2.6E−08	2.3E−06	1.7E−07	9.5E−06	1.5E−03	1.6E−04	8.5E−03	9.0E−04	9.0E−05	NA	NA	NA	NA	NA	NA	NA
beryllium	2.3E−10	7.5E−09	1.6E−09	3.4E−11	1.6E−06	1.4E−06	2.9E−08	9.5E−06	9.5E−07	NA	1.6E−06	5.6E−07	4.3E−08	9.2E−10	NA	3.3E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.4E−09	7.0E−07	8.8E−08	3.7E−06	1.3E−03	1.7E−04	7.1E−03	7.4E−05	7.4E−06	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.5E−09	2.1E−07	1.6E−07	1.0E−06	1.0E−04	1.4E−04	8.8E−04	2.0E−04	2.0E−05	NA	7.8E−05	4.0E−05	9.5E−06	6.2E−05	NA	3.1E−07
cobalt	2.6E−09	1.2E−07	3.8E−07	9.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	5.8E−09	1.7E−06	1.7E−06	5.8E−06	6.8E−03	7.1E−03	2.5E−02	2.4E−04	2.4E−06	NA	NA	NA	NA	NA	NA	NA
lead	1.9E−08	1.3E−06	1.1E−07	2.1E−06	2.5E−04	3.0E−05	5.8E−04	2.5E−04	2.5E−05	NA	NA	NA	NA	NA	NA	NA
magnesium	5.6E−06	2.6E−04	1.0E−04	2.0E−03	NA	NA	NA	NA	NA	NA	1.1E+01	5.5E+00	1.3E+00	2.4E+01	NA	2.1E−02
manganese	2.9E−07	2.9E−05	2.9E−06	6.0E−05	NA	NA	NA	NA	NA	NA	6.3E−02	7.4E−02	3.9E−03	8.0E−02	NA	1.3E−04
mercury	4.5E−11	1.9E−09	7.0E−08	2.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.3E−09	9.5E−08	1.1E−07	6.5E−07	4.5E−04	7.5E−04	4.4E−03	6.6E−05	6.6E−06	NA	NA	NA	NA	NA	NA	NA
nickel	6.2E−09	1.5E−06	6.3E−07	2.5E−06	1.9E−03	8.7E−04	3.4E−03	2.9E−04	1.4E−06	NA	NA	NA	NA	NA	NA	NA
selenium	2.1E−10	2.5E−08	3.0E−08	1.9E−07	3.0E−05	4.1E−05	2.6E−04	1.1E−05	1.1E−06	NA	NA	NA	NA	NA	NA	NA
silver	2.4E−09	4.1E−07	2.8E−07	4.4E−05	6.6E−04	5.2E−04	8.1E−02	5.8E−05	NA	NA	NA	NA	NA	NA	NA	NA
thallium	1.0E−10	2.8E−09	2.2E−08	2.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	1.1E−07	2.9E−06	3.0E−08	2.1E−06	4.7E−04	2.8E−05	1.9E−03	1.0E−03	1.0E−04	NA	1.1E−02	2.9E−03	1.9E−05	1.4E−03	NA	2.2E−05
vanadium	5.9E−09	2.3E−07	7.9E−08	1.5E−08	1.1E−04	8.7E−05	1.6E−05	3.1E−04	3.1E−06	NA	NA	NA	NA	NA	NA	NA
zinc	2.4E−08	1.1E−04	1.1E−03	2.7E−03	1.0E−01	1.1E+00	2.6E+00	1.0E−03	1.0E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.2E−12	2.5E−11	2.0E−12	2.6E−11	1.4E−04	2.6E−05	3.4E−04	4.7E−05	1.9E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.8E−15	1.6E−13	1.6E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.9E−04	3.2E−05	2.4E−04	3.2E−05	9.6E−05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E−13	2.0E−11	1.7E−16	2.0E−15	2.4E−04	2.9E−09	3.4E−08	3.6E−07	1.1E−06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.5E−04	4.7E−05	3.5E−04	3.5E−05	1.0E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	8.6E−04	5.5E−05	4.1E−04	8.7E−05	2.6E−04	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.2E−06	1.1E−04	3.6E−07	2.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.7E−14	1.2E−12	7.7E−12	5.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E−15	1.6E−13	6.9E−15	5.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–34g
INTAKES FOR TOXICANTS FOR ON–PROPERTY CHILD
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Ground Water					
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	1.5E−10	8.4E−09	2.7E−14	2.0E−13	7.0E−02	2.5E−07	1.9E−06	2.5E−05	2.5E−06	NA	NA	NA	NA	NA	NA	NA
aluminum	1.9E−06	4.8E−05	NA	NA	NA	NA	NA	1.1E−01	1.1E−02	NA	NA	NA	NA	NA	NA	NA
antimony	2.9E−09	2.5E−07	8.0E−08	1.9E−07	1.8E−04	8.0E−05	1.9E−04	5.2E−05	5.2E−06	NA	1.9E−04	1.8E−04	3.0E−05	7.2E−05	NA	3.7E−07
arsenic	1.9E−09	6.8E−08	2.4E−08	1.7E−08	1.2E−04	1.2E−04	8.7E−05	1.7E−04	1.7E−06	NA	3.6E−04	1.4E−04	2.5E−05	1.8E−05	NA	7.3E−07
barium	2.5E−08	2.3E−06	1.7E−07	9.2E−06	1.9E−03	2.0E−04	1.1E−02	1.1E−03	1.1E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	2.0E−10	6.7E−09	1.4E−09	3.0E−11	1.6E−06	1.4E−06	2.9E−08	9.3E−06	9.3E−07	NA	7.6E−06	2.6E−06	2.0E−07	4.2E−09	NA	1.5E−08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	7.7E−10	3.8E−07	4.8E−08	2.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.6E−09	1.7E−07	1.3E−07	8.2E−07	2.8E−04	3.8E−04	2.4E−03	5.5E−04	5.5E−05	NA	6.8E−04	3.5E−04	8.3E−05	5.4E−04	NA	2.7E−06
cobalt	1.9E−09	9.0E−08	2.8E−07	6.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	9.6E−09	2.7E−06	2.7E−06	9.6E−06	6.6E−03	6.9E−03	2.4E−02	2.3E−04	2.3E−06	NA	NA	NA	NA	NA	NA	NA
lead	2.4E−07	1.7E−05	1.4E−06	2.7E−05	2.8E−02	3.3E−03	6.5E−02	2.8E−02	2.8E−03	NA	NA	NA	NA	NA	NA	NA
magnesium	6.1E−06	2.9E−04	1.1E−04	2.1E−03	NA	NA	NA	NA	NA	NA	8.6E+01	4.5E+01	1.0E+01	1.9E+02	NA	1.7E−01
manganese	1.9E−07	1.8E−05	1.9E−06	3.9E−05	6.7E−02	8.9E−03	1.8E−01	1.2E−02	1.2E−03	NA	8.6E−02	1.0E−01	5.3E−03	1.1E−01	NA	1.7E−04
mercury	7.0E−11	3.0E−09	1.1E−07	4.5E−09	1.8E−03	1.3E−01	5.6E−03	8.1E−05	4.0E−05	NA	NA	NA	NA	NA	NA	NA
molybdenum	1.6E−09	1.1E−07	1.3E−07	7.7E−07	7.4E−04	1.2E−03	7.2E−03	1.1E−04	1.1E−05	NA	NA	NA	NA	NA	NA	NA
nickel	4.0E−09	9.4E−07	4.1E−07	1.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	1.3E−10	1.6E−08	1.9E−08	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	1.5E−09	2.6E−07	1.8E−07	2.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	5.4E−11	1.5E−09	1.1E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	3.3E−07	8.6E−06	8.9E−08	6.2E−06	1.1E−04	6.5E−06	4.6E−04	2.4E−04	2.4E−05	NA	5.8E−01	1.5E−01	1.0E−03	7.4E−02	NA	1.2E−03
vanadium	4.7E−09	1.8E−07	6.2E−08	1.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	2.2E−08	1.0E−04	1.1E−03	2.5E−03	1.1E−01	1.2E+00	2.9E+00	1.1E−03	1.1E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	1.5E−12	3.0E−11	2.4E−12	3.1E−11	2.3E−06	4.4E−07	5.8E−06	7.9E−07	3.2E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.0E−15	2.4E−13	2.4E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−12	2.6E−11	2.3E−16	2.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	2.0E−14	1.5E−12	9.1E−12	6.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.4E−15	1.8E−13	7.8E−15	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI–35a
INTAKES FOR CARCINOGENS FOR RME ON–PROPERTY FARMER
USE OF PERCHED GROUNDWATER IN PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Perched Groundwater			Great Miami Aquifer Groundwater		
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life	pCi/life		pCi/life	pCi/life			pCi/life	pCi/life	pCi/life
Cs_{137+1d}	5.7E−01	4.6E+00	1.7E+01	2.3E+01	1.7E+04	1.5E+05	2.1E+05	4.0E+03	NA	3.7E+01	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.6E−01	1.9E+00	3.5E−02	1.3E−02	2.3E+03	2.0E+02	7.4E+01	1.6E+03	NA	1.5E+01	9.7E+04	NA	NA	5.2E+02	5.4E+00	2.0E+00
Pu_{238}	7.4E+00	4.7E+01	3.4E−03	2.8E−03	1.1E+02	1.9E+00	1.5E+00	1.7E+04	NA	1.6E+02	4.5E+04	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.0E+00	6.5E+00	1.2E−03	9.7E−04	3.1E+01	5.2E−01	4.1E−01	4.8E+03	NA	4.5E+01	2.5E+04	NA	NA	NA	NA	NA
Ra_{226+8d}	1.5E+02	1.1E+03	1.2E+02	8.9E+02	2.3E+03	1.4E+03	1.0E+04	1.1E+04	NA	1.0E+02	1.0E+05	NA	NA	2.9E+04	1.4E+03	1.0E+04
Ru_{106}	5.9E−01	3.7E+00	7.4E−01	9.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E+00	1.3E+01	2.3E+00	4.7E+01	2.5E+05	1.1E+05	2.1E+06	6.8E+03	NA	6.4E+01	1.7E+05	NA	NA	4.2E+03	4.4E+02	8.8E+03
Tc_{99}	6.9E+00	4.8E+01	7.7E+01	3.6E+02	5.1E+06	4.0E+07	1.9E+08	2.4E+04	NA	2.2E+02	9.1E+07	NA	NA	2.7E+07	2.8E+07	1.3E+08
Th_{230}	3.3E+02	2.1E+03	5.3E+00	1.8E+01	3.5E+03	3.8E+02	1.3E+03	2.8E+05	NA	2.6E+03	7.4E+04	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.5E+01	1.6E+02	4.0E−01	1.3E+00	1.5E+03	1.6E+02	5.4E+02	1.2E+05	NA	1.1E+03	1.4E+05	NA	NA	NA	NA	NA
U_{234}	8.3E+02	5.3E+03	1.2E+02	1.5E+03	1.1E+06	1.5E+05	1.8E+06	1.9E+06	NA	1.8E+04	4.9E+08	NA	NA	7.0E+06	1.0E+05	1.3E+06
$U_{235/236}$	6.9E+01	4.4E+02	1.0E+01	1.2E+02	9.4E+04	1.2E+04	1.5E+05	1.6E+05	NA	1.5E+03	2.5E+07	NA	NA	3.2E+05	4.8E+03	5.9E+04
U_{238+2d}	9.1E+02	5.8E+03	1.4E+02	1.6E+03	1.4E+06	1.9E+05	2.3E+06	2.5E+06	NA	2.3E+04	6.0E+08	NA	NA	6.8E+06	1.0E+05	1.3E+06
Rn_{222+4d}	2.3E+06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
arsenic	4.7E−09	4.1E−08	3.3E−08	3.9E−09	2.3E−05	5.6E−05	6.7E−06	2.7E−05	8.6E−07	NA	3.8E−04	NA	1.1E−06	5.8E−05	2.3E−05	2.8E−06
beryllium	5.2E−10	4.1E−09	2.0E−09	7.1E−12	6.4E−07	1.2E−06	4.4E−09	2.9E−06	9.4E−07	NA	2.4E−04	NA	6.8E−07	2.3E−10	4.0E−11	1.4E−13
cadmium	2.0E−09	2.4E−07	6.7E−08	4.9E−07	2.8E−04	8.3E−05	6.1E−04	1.3E−05	4.1E−06	NA	4.4E−04	NA	1.3E−06	NA	NA	NA
chromium vi	9.8E−09	1.1E−07	1.9E−07	2.1E−07	4.4E−05	1.4E−04	1.5E−04	6.8E−05	2.2E−05	NA	3.3E−03	NA	1.9E−05	2.5E−06	1.3E−06	1.4E−06
nickel	1.1E−08	6.4E−07	6.2E−07	4.1E−07	5.5E−04	5.5E−04	3.7E−04	6.3E−05	1.0E−06	NA	1.8E−03	NA	5.3E−07	NA	NA	NA
benzene	4.7E−15	5.3E−14	2.1E−17	2.8E−17	2.1E−06	9.9E−10	1.3E−09	6.5E−09	1.0E−10	NA	3.8E−04	1.4E−03	6.5E−05	NA	NA	NA
bis(2−ethylhexyl)phthalate	5.4E−12	2.6E−11	4.8E−12	1.1E−11	2.7E−06	1.1E−06	2.5E−06	7.1E−07	9.0E−08	NA	1.6E−04	NA	4.0E−04	NA	NA	NA
bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E−05	1.0E−04	2.0E−06	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	2.2E−12	4.7E−11	5.2E−13	6.5E−13	1.9E−05	2.3E−07	2.9E−07	3.7E−07	3.5E−06	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.8E−04	2.2E−03	1.8E−04	NA	NA	NA
chloroform	3.3E−14	2.7E−13	6.1E−17	8.2E−17	8.9E−06	2.5E−09	3.4E−09	2.3E−08	2.2E−07	NA	1.3E−03	4.8E−03	1.2E−04	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	3.2E−06	1.3E−09	1.7E−09	1.0E−08	9.6E−08	NA	4.9E−04	1.8E−03	7.3E−05	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	4.9E−08	2.1E−11	2.7E−11	1.4E−10	1.4E−09	NA	2.0E−03	7.4E−03	9.8E−05	NA	NA	NA
methylene chloride	4.3E−12	2.5E−11	4.9E−16	9.9E−16	3.8E−05	1.0E−09	2.1E−09	4.4E−08	4.2E−07	NA	3.3E−04	1.2E−03	1.3E−05	NA	NA	NA
n−nitrosodiphenylamine	5.6E−12	3.5E−11	2.3E−13	3.2E−13	5.2E−05	4.8E−07	6.7E−07	1.0E−06	9.9E−06	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	9.4E−14	7.7E−13	3.8E−17	5.1E−17	NA	NA	NA	NA	NA	NA	5.5E−05	NA	2.1E−06	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E−03	NA	5.1E−02	NA	NA	NA
tetrachloroethene	1.5E−06	1.3E−05	9.1E−08	1.2E−07	3.3E−06	3.0E−08	3.8E−08	5.4E−08	7.0E−07	NA	1.9E−04	7.2E−04	1.4E−04	NA	NA	NA
1,1,2−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E−05	1.0E−04	2.8E−06	NA	NA	NA
trichloroethene	2.9E−06	4.3E−05	3.4E−08	4.4E−08	1.2E−05	1.1E−08	1.4E−08	5.2E−08	5.0E−07	NA	4.7E−03	1.7E−02	8.8E−04	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2E−04	8.2E−04	1.2E−05	NA	NA	NA
benzo(a)anthracene	2.8E−11	1.8E−10	2.3E−10	3.0E−10	1.0E−05	2.4E−05	3.1E−05	3.4E−06	3.2E−05	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E−11	2.0E−10	6.9E−10	8.7E−10	4.7E−06	4.0E−05	5.0E−05	2.8E−06	2.7E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E−11	2.0E−10	7.4E−10	9.5E−10	4.9E−06	4.4E−05	5.5E−05	3.0E−06	2.9E−05	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E−11	1.6E−10	3.4E−09	4.3E−09	1.5E−06	1.2E−04	1.6E−04	2.4E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA
chrysene	2.8E−11	1.9E−10	2.5E−10	3.1E−10	9.5E−06	2.3E−05	2.9E−05	3.2E−06	3.0E−05	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.0E−12	5.7E−11	1.1E−09	1.4E−09	5.5E−07	4.5E−05	5.8E−05	8.8E−07	8.4E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.0E−11	1.3E−10	1.4E−09	1.7E−09	2.0E−06	7.3E−05	9.3E−05	2.3E−06	2.2E−05	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	5.7E−11	1.3E−09	7.9E−09	9.9E−09	1.0E−05	7.1E−05	9.0E−05	5.6E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	5.6E−13	5.8E−12	6.4E−10	8.1E−10	5.6E−07	1.3E−04	1.6E−04	1.3E−06	2.6E−06	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	1.1E−13	1.9E−12	2.6E−11	3.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	1.3E−13	8.8E−13	1.3E−12	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.0E−14	1.9E−13	1.8E−13	2.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E−14	2.7E−13	2.6E−14	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	3.1E−12	9.4E−09	1.3E−08	2.3E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.3E−15	2.5E−14	1.9E−11	2.8E−11	4.4E−12	1.5E−07	2.1E−07	7.8E−11	7.4E−11	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E−15	7.0E−15	8.2E−12	1.2E−11	4.1E−12	2.6E−07	3.7E−07	9.2E−11	8.8E−11	NA	NA	NA	NA	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-36a
INTAKES FOR TOXICANTS FOR RME ON-PROPERTY FARMER
USE OF PERCHED GROUNDWATER IN PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Perched Groundwater			Great Miami Aquifer Groundwater		
Exposure Pathways:	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion Inhalation of VOC's	Dermal Contact while Bathing	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day		mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day	mg/Kg/day
cyanide	2.5E-10	3.5E-09	2.5E-14	3.2E-14	7.4E-03	6.0E-08	7.6E-08	2.1E-06	6.7E-07	NA	1.5E-02	NA	2.0E-04	NA	NA	NA
aluminum	4.7E-06	2.9E-05	NA	NA	NA	NA	NA	3.0E-02	9.6E-03	NA	3.3E+00	NA	9.6E-03	NA	NA	NA
antimony	1.1E-08	2.2E-07	1.6E-07	6.4E-08	2.5E-04	2.5E-04	1.0E-04	5.8E-05	1.9E-05	NA	2.3E-03	NA	6.6E-06	5.8E-04	2.1E-04	8.6E-05
arsenic	4.7E-09	4.1E-08	3.3E-08	3.9E-09	2.3E-05	5.6E-05	6.7E-06	2.7E-05	8.6E-07	NA	3.8E-04	NA	1.1E-06	5.8E-05	2.3E-05	2.8E-06
barium	8.5E-08	1.9E-06	3.1E-07	2.9E-06	1.2E-03	2.9E-04	2.7E-03	5.7E-04	1.8E-04	NA	7.8E-03	NA	2.2E-05	NA	NA	NA
beryllium	5.2E-10	4.1E-09	2.0E-09	7.1E-12	6.4E-07	1.2E-06	4.4E-09	2.9E-06	9.4E-07	NA	2.4E-04	NA	6.8E-07	2.3E-10	4.0E-11	1.4E-13
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E-02	NA	3.4E-05	NA	NA	NA
cadmium	2.0E-09	2.4E-07	6.7E-08	4.9E-07	2.8E-04	8.3E-05	6.1E-04	1.3E-05	4.1E-06	NA	4.4E-04	NA	1.3E-06	NA	NA	NA
chromium vi	9.8E-09	1.1E-07	1.9E-07	2.1E-07	4.4E-05	1.4E-04	1.5E-04	6.8E-05	2.2E-05	NA	3.3E-03	NA	1.9E-05	2.5E-06	1.3E-06	1.4E-06
cobalt	4.9E-09	5.8E-08	4.0E-07	1.6E-07	3.0E-05	3.7E-04	1.5E-04	2.9E-05	9.4E-06	NA	7.4E-04	NA	8.5E-07	NA	NA	NA
copper	1.6E-08	1.1E-06	2.5E-06	1.5E-06	3.8E-03	9.0E-03	5.4E-03	1.1E-04	3.4E-06	NA	7.5E-03	NA	2.2E-05	NA	NA	NA
lead	1.9E-07	3.3E-06	5.9E-07	2.0E-06	3.9E-04	1.0E-04	3.5E-04	3.0E-04	9.6E-05	NA	8.8E-04	NA	1.0E-08	NA	NA	NA
magnesium	1.2E-05	1.4E-04	1.3E-04	4.0E-04	8.1E-01	1.1E+00	3.4E+00	1.0E-02	3.2E-03	NA	9.0E+00	NA	2.6E-02	3.4E+00	1.7E+00	5.6E+00
manganese	4.5E-07	1.1E-05	2.5E-06	8.8E-06	1.0E-02	3.1E-03	1.1E-02	1.4E-03	4.5E-04	NA	7.5E-02	NA	2.2E-04	4.4E-02	5.2E-03	1.8E-02
mercury	2.8E-10	2.9E-09	2.4E-07	1.7E-09	4.8E-05	7.8E-03	5.6E-05	1.6E-06	2.6E-06	NA	5.5E-06	NA	1.6E-08	NA	NA	NA
molybdenum	4.1E-09	7.1E-08	1.8E-07	1.8E-07	1.6E-04	6.1E-04	6.1E-04	1.9E-05	6.0E-06	NA	1.1E-03	NA	3.2E-06	NA	NA	NA
nickel	1.1E-08	6.4E-07	6.2E-07	4.1E-07	5.5E-04	5.5E-04	3.7E-04	6.3E-05	1.0E-06	NA	1.8E-03	NA	5.3E-07	NA	NA	NA
selenium	6.2E-10	1.8E-08	4.8E-08	5.2E-08	7.8E-06	2.3E-05	2.5E-05	2.1E-06	6.8E-07	NA	1.7E-04	NA	5.0E-07	NA	NA	NA
silver	4.2E-09	1.8E-07	2.7E-07	7.3E-06	1.7E-04	3.0E-04	8.0E-03	1.2E-05	NA	NA	1.7E-03	NA	2.9E-06	NA	NA	NA
thallium	1.5E-10	1.0E-09	1.8E-08	3.6E-09	6.5E-08	1.3E-05	2.6E-06	1.1E-06	3.6E-07	NA	9.2E-03	NA	2.7E-05	NA	NA	NA
uranium-total	1.3E-06	8.6E-06	2.0E-07	2.4E-06	1.3E-03	1.8E-04	2.1E-03	2.3E-03	7.3E-04	NA	3.5E+00	NA	1.0E-02	1.1E-02	1.7E-04	2.1E-03
vanadium	1.2E-08	1.1E-07	8.6E-08	2.7E-09	2.9E-05	5.4E-05	1.7E-06	6.7E-05	2.2E-06	NA	7.3E-03	NA	2.1E-05	NA	NA	NA
zinc	6.5E-08	7.1E-05	1.7E-03	6.8E-04	4.5E-02	1.1E+00	4.4E-01	3.5E-04	1.1E-04	NA	8.2E-03	NA	1.4E-05	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6E-04	1.3E-03	2.0E-06	NA	NA	NA
bis(2-ethylhexyl)phthalate	5.4E-12	2.6E-11	4.8E-12	1.1E-11	2.7E-06	1.1E-06	2.5E-06	7.1E-07	9.0E-08	NA	1.6E-04	NA	4.0E-04	NA	NA	NA
bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E-05	1.0E-04	2.0E-06	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.8E-04	2.2E-03	1.8E-04	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2E-05	3.1E-04	1.6E-05	NA	NA	NA
chloroform	3.3E-14	2.7E-13	6.1E-17	8.2E-17	8.9E-06	2.5E-09	3.4E-09	2.3E-08	2.2E-07	NA	1.3E-03	4.8E-03	1.2E-04	NA	NA	NA
2-chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4E-03	NA	5.6E-04	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	9.7E-06	9.9E-10	1.3E-09	1.2E-08	1.2E-07	NA	2.0E-03	7.4E-03	1.7E-04	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	3.2E-06	1.3E-09	1.7E-09	1.0E-08	9.6E-08	NA	4.9E-04	1.8E-03	7.3E-05	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.9E-03	7.0E-03	9.3E-05	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.1E-05	1.9E-05	2.5E-05	6.7E-06	6.4E-05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.3E-12	2.5E-11	4.9E-16	9.9E-16	3.8E-05	1.0E-09	2.1E-09	4.4E-08	4.2E-07	NA	3.3E-04	1.2E-03	1.3E-05	NA	NA	NA
pyrene	NA	NA	NA	NA	2.9E-05	2.0E-05	2.5E-05	5.1E-06	4.9E-05	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E-03	NA	5.1E-02	NA	NA	NA
phenanthrene	NA	NA	NA	NA	7.5E-05	1.1E-05	1.4E-05	5.9E-06	5.6E-05	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0E-03	NA	2.9E-03	NA	NA	NA
tetrachloroethene	1.5E-06	1.3E-05	9.1E-08	1.2E-07	3.3E-06	3.0E-08	3.8E-08	5.4E-08	7.0E-07	NA	1.9E-04	7.2E-04	1.4E-04	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E-03	5.1E-03	5.5E-04	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	1.0E-05	1.1E-08	1.4E-08	5.0E-08	4.8E-07	NA	1.9E-03	7.0E-03	3.8E-04	NA	NA	NA
1,1,2-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E-05	1.0E-04	2.8E-06	NA	NA	NA
4,4-ddt	1.1E-13	1.9E-12	2.6E-11	3.3E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E-14	2.7E-13	2.6E-14	3.4E-14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.5E-02	NA	7.2E-05	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E+00	NA	3.6E-03	NA	NA	NA
nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.4E-02	NA	9.8E-05	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.5E+00	NA	2.7E-02	NA	NA	NA

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

TABLE A.VI-37a
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, PRODUCTION AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	1.7E-02	2.1E+01	NA	3.0E-02
Np_{237+1d}	7.8E-03	3.1E+01	NA	4.4E-02
Pu_{238}	2.2E-01	3.3E+02	NA	4.7E-01
$Pu_{239/240}$	3.1E-02	1.0E+02	NA	1.4E-01
Ra_{226+8d}	4.5E+00	2.0E+02	NA	2.9E-01
Ru_{106}	1.8E-02	NA	NA	NA
Sr_{90+1d}	3.9E-02	5.9E+02	NA	8.4E-01
Tc_{99}	2.1E-01	1.7E+03	NA	2.4E+00
Th_{230}	9.8E+00	5.3E+03	NA	7.6E+00
$Th_{232+10d}$	7.4E-01	2.3E+03	NA	3.2E+00
U_{234}	2.5E+01	3.7E+04	NA	5.2E+01
$U_{235/236}$	2.1E+00	3.1E+03	NA	4.4E+00
U_{238+2d}	2.8E+01	4.7E+04	NA	6.7E+01
Rn_{222+4d}	7.0E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.4E-10	4.8E-07	5.8E-09	NA
beryllium	1.6E-11	8.8E-08	1.0E-08	NA
cadmium	6.0E-11	2.6E-07	3.1E-08	NA
chromium vi	3.0E-10	1.3E-06	1.5E-07	NA
nickel	3.4E-10	1.5E-06	8.7E-09	NA
benzene	1.4E-16	1.2E-10	7.4E-13	NA
bis(2-ethylhexyl)phthalate	1.6E-13	4.1E-08	2.0E-09	NA
bromodichloromethane	NA	3.1E-10	1.1E-09	NA
carbazole	6.6E-14	7.0E-09	2.5E-08	NA
carbon tetrachloride	NA	8.8E-11	3.2E-10	NA
chloroform	9.9E-16	4.3E-10	1.6E-09	NA
1,1-dichloroethene	NA	6.3E-10	2.3E-09	NA
1,2-dichloroethane	NA	5.1E-11	1.8E-10	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.3E-13	1.0E-09	3.6E-09	NA
n-nitrosodiphenylamine	1.7E-13	2.0E-08	7.1E-08	NA
n-nitrosodipropylamine	2.8E-15	2.6E-10	9.2E-10	NA
pentachlorophenol	NA	2.1E-09	7.4E-09	NA
tetrachloroethene	4.4E-08	1.4E-08	6.7E-08	NA
trichloroethene	8.8E-08	1.6E-08	5.6E-08	NA
vinyl chloride	NA	2.2E-10	7.9E-10	NA
benzo(a)anthracene	8.3E-13	6.4E-08	2.3E-07	NA
benzo(a)pyrene	9.1E-13	5.4E-08	1.9E-07	NA
benzo(b)fluoranthene	9.6E-13	5.7E-08	2.1E-07	NA
benzo(k)fluoranthene	7.6E-13	4.5E-08	1.6E-07	NA
chrysene	8.4E-13	6.0E-08	2.2E-07	NA
dibenzo(a,h)anthracene	2.7E-13	1.7E-08	6.0E-08	NA
indeno(1,2,3-cd)pyrene	6.1E-13	4.4E-08	1.6E-07	NA
aroclor-1254	1.7E-12	1.1E-07	7.7E-08	NA
aroclor-1260	1.7E-14	2.6E-08	1.8E-08	NA
4,4-ddt	3.2E-15	NA	NA	NA
4,4-dde	3.8E-15	NA	NA	NA
chlordane	9.0E-16	NA	NA	NA
dieldrin	1.2E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	4.3E-13	1.5E-13	NA
octachlorodibenzo-p-dioxin	1.3E-16	1.5E-12	5.3E-13	NA
octachlorodibenzofuran	3.6E-17	1.7E-12	6.3E-13	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37b
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Contaminants of Concern	Inhalation	Ingestion	Contact	Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	2.0E-03	6.5E+01	NA	9.2E-02
Np_{237+1d}	5.2E-04	6.8E+01	NA	9.7E-02
Pu_{238}	1.2E-02	NA	NA	NA
$Pu_{239/240}$	3.0E-03	NA	NA	NA
Ra_{226+8d}	4.2E-01	NA	NA	NA
Ru_{106}	2.3E-03	NA	NA	NA
Sr_{90+1d}	3.5E-03	1.2E+02	NA	1.7E-01
Tc_{99}	2.6E-02	1.3E+02	NA	1.9E-01
Th_{230}	4.5E-01	1.5E+02	NA	2.1E-01
$Th_{232+10d}$	4.9E-02	NA	NA	NA
U_{234}	1.3E+00	3.4E+02	NA	4.8E-01
$U_{235/236}$	1.2E-01	5.9E+01	NA	8.4E-02
U_{238+2d}	1.6E+00	4.3E+02	NA	6.1E-01
Rn_{222+4d}	1.1E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	3.7E-11	NA	NA	NA
beryllium	3.9E-12	7.5E-08	9.0E-09	NA
cadmium	2.2E-11	8.0E-08	9.6E-09	NA
chromium vi	7.2E-11	6.7E-07	8.0E-08	NA
nickel	9.8E-11	8.0E-07	4.8E-09	NA
benzene	4.9E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	3.9E-14	2.8E-08	1.3E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	4.9E-15	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	8.2E-15	NA	NA	NA
n-nitrosodiphenylamine	3.1E-14	NA	NA	NA
n-nitrosodipropylamine	9.4E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.2E-07	NA	NA	NA
trichloroethene	4.1E-07	1.9E-10	6.8E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.0E-13	2.3E-09	8.1E-09	NA
benzo(a)pyrene	1.2E-13	NA	NA	NA
benzo(b)fluoranthene	1.5E-13	2.6E-09	9.5E-09	NA
benzo(k)fluoranthene	1.3E-13	2.8E-09	1.0E-08	NA
chrysene	1.3E-13	3.6E-09	1.3E-08	NA
dibenzo(a,h)anthracene	3.9E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.8E-14	NA	NA	NA
aroclor-1254	1.2E-13	NA	NA	NA
aroclor-1260	5.9E-15	NA	NA	NA
4,4-ddt	6.1E-16	NA	NA	NA
4,4-dde	2.2E-16	NA	NA	NA
chlordane	1.3E-16	NA	NA	NA
dieldrin	1.0E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.5E-17	NA	NA	NA
octachlorodibenzofuran	1.2E-17	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37c
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	7.5E-03	6.7E+01	NA	9.6E-02
Np_{237+1d}	1.7E-03	2.4E+01	NA	3.5E-02
Pu_{238}	4.1E-02	NA	NA	NA
$Pu_{239/240}$	9.2E-03	2.2E+01	NA	3.1E-02
Ra_{226+8d}	5.6E+00	3.6E+01	NA	5.1E-02
Ru_{106}	3.3E-03	2.1E+02	NA	3.0E-01
Sr_{90+1d}	2.4E-02	8.5E+02	NA	1.2E+00
Tc_{99}	2.4E-01	3.0E+02	NA	4.4E-01
Th_{230}	1.2E+01	1.2E+03	NA	1.7E+00
$Th_{232+10d}$	3.8E-01	1.9E+03	NA	2.7E+00
U_{234}	7.6E+00	2.7E+03	NA	3.9E+00
$U_{235/236}$	5.6E-01	1.0E+03	NA	1.5E+00
U_{238+2d}	7.5E+00	2.7E+03	NA	3.9E+00
Rn_{222+4d}	4.0E+04	1.5E+04	NA	2.2E+01
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	7.0E-11	4.3E-07	5.1E-09	NA
beryllium	8.7E-12	5.2E-08	6.2E-09	NA
cadmium	3.6E-11	1.7E-07	2.1E-08	NA
chromium vi	1.5E-10	1.5E-06	1.7E-07	NA
nickel	1.8E-10	2.3E-06	1.4E-08	NA
benzene	2.1E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.6E-13	8.5E-09	4.1E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	5.9E-14	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.0E-15	9.4E-11	3.4E-10	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.6E-13	1.5E-09	5.5E-09	NA
n-nitrosodiphenylamine	4.7E-14	NA	NA	NA
n-nitrosodipropylamine	4.1E-15	NA	NA	NA
pentachlorophenol	NA	1.2E-08	4.4E-08	NA
tetrachloroethene	4.9E-08	8.3E-10	4.0E-09	NA
trichloroethene	9.7E-08	4.7E-11	1.7E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	6.0E-13	1.7E-08	6.2E-08	NA
benzo(a)pyrene	7.3E-13	1.3E-08	4.8E-08	NA
benzo(b)fluoranthene	7.1E-13	4.6E-08	1.7E-07	NA
benzo(k)fluoranthene	7.4E-13	8.2E-09	3.0E-08	NA
chrysene	5.6E-13	2.7E-08	9.9E-08	NA
dibenzo(a,h)anthracene	2.5E-13	1.9E-09	6.7E-09	NA
indeno(1,2,3-cd)pyrene	4.6E-13	6.7E-09	2.4E-08	NA
aroclor-1254	9.0E-13	6.9E-10	4.9E-10	NA
aroclor-1260	2.6E-14	1.3E-07	9.1E-08	NA
4,4-ddt	2.4E-15	NA	NA	NA
4,4-dde	7.7E-16	NA	NA	NA
chlordane	1.9E-16	NA	NA	NA
dieldrin	2.4E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.2E-17	NA	NA	NA
octachlorodibenzofuran	5.3E-17	7.0E-08	2.5E-08	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37d
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	3.3E-03	4.3E+01	NA	6.2E-02
Np_{237+1d}	1.1E-03	NA	NA	NA
Pu_{238}	5.6E-02	NA	NA	NA
$Pu_{239/240}$	6.6E-03	5.0E+01	NA	7.2E-02
Ra_{226+8d}	8.4E-01	NA	NA	NA
Ru_{106}	1.6E-03	NA	NA	NA
Sr_{90+1d}	8.4E-03	1.8E+02	NA	2.6E-01
Tc_{99}	7.0E-02	NA	NA	NA
Th_{230}	3.2E+00	1.5E+02	NA	2.1E-01
$Th_{232+10d}$	2.1E-01	NA	NA	NA
U_{234}	5.9E+00	5.6E+02	NA	8.0E-01
$U_{235/236}$	4.5E-01	6.7E+01	NA	9.6E-02
U_{238+2d}	6.3E+00	3.9E+02	NA	5.6E-01
Rn_{222+4d}	4.7E+03	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	3.9E-11	NA	NA	NA
beryllium	4.7E-12	6.6E-08	7.9E-09	NA
cadmium	1.5E-11	1.3E-07	1.6E-08	NA
chromium vi	7.4E-11	6.2E-07	7.5E-08	NA
nickel	8.4E-11	7.0E-07	4.2E-09	NA
benzene	2.5E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.1E-14	2.4E-09	1.1E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	1.4E-14	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.8E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.5E-14	NA	NA	NA
n-nitrosodiphenylamine	1.5E-14	NA	NA	NA
n-nitrosodipropylamine	5.1E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.2E-08	1.4E-10	6.8E-10	NA
trichloroethene	2.3E-08	9.4E-11	3.4E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.5E-13	NA	NA	NA
benzo(a)pyrene	1.6E-13	NA	NA	NA
benzo(b)fluoranthene	1.7E-13	NA	NA	NA
benzo(k)fluoranthene	1.4E-13	NA	NA	NA
chrysene	1.5E-13	NA	NA	NA
dibenzo(a,h)anthracene	4.9E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.1E-13	NA	NA	NA
aroclor-1254	3.5E-13	NA	NA	NA
aroclor-1260	3.1E-15	NA	NA	NA
4,4-ddt	5.9E-16	NA	NA	NA
4,4-dde	7.8E-16	NA	NA	NA
chlordane	1.1E-16	NA	NA	NA
dieldrin	2.0E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-17	NA	NA	NA
octachlorodibenzofuran	6.5E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37e
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	3.4E-03	6.5E+01	NA	9.2E-02
Np_{237+1d}	1.3E-03	NA	NA	NA
Pu_{238}	6.7E-02	NA	NA	NA
$Pu_{239/240}$	7.7E-03	NA	NA	NA
Ra_{226+8d}	7.0E-01	NA	NA	NA
Ru_{106}	2.7E-03	NA	NA	NA
Sr_{90+1d}	8.0E-03	1.3E+02	NA	1.9E-01
Tc_{99}	4.2E-02	1.1E+02	NA	1.6E-01
Th_{230}	3.3E+00	1.9E+02	NA	2.8E-01
$Th_{232+10d}$	1.8E-01	NA	NA	NA
U_{234}	6.3E+00	1.6E+03	NA	2.3E+00
$U_{235/236}$	5.2E-01	2.1E+02	NA	2.9E-01
U_{238+2d}	7.0E+00	3.0E+03	NA	4.3E+00
Rn_{222+4d}	3.7E+03	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	4.5E-11	NA	NA	NA
beryllium	4.7E-12	8.0E-08	9.6E-09	NA
cadmium	1.5E-11	6.1E-08	7.3E-09	NA
chromium vi	7.0E-11	NA	NA	NA
nickel	8.4E-11	NA	NA	NA
benzene	2.2E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.7E-14	3.3E-08	1.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	9.8E-15	3.3E-10	1.2E-09	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.8E-14	NA	NA	NA
n-nitrosodiphenylamine	1.7E-14	NA	NA	NA
n-nitrosodipropylamine	4.1E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.4E-08	9.4E-11	4.5E-10	NA
trichloroethene	2.9E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.4E-13	3.1E-09	1.1E-08	NA
benzo(a)pyrene	1.5E-13	2.9E-09	1.0E-08	NA
benzo(b)fluoranthene	1.6E-13	3.1E-09	1.1E-08	NA
benzo(k)fluoranthene	1.2E-13	3.6E-09	1.3E-08	NA
chrysene	1.5E-13	4.1E-09	1.5E-08	NA
dibenzo(a,h)anthracene	4.3E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.1E-13	2.3E-09	8.4E-09	NA
aroclor-1254	3.3E-13	NA	NA	NA
aroclor-1260	2.5E-15	NA	NA	NA
4,4-ddt	5.5E-16	NA	NA	NA
4,4-dde	7.8E-16	NA	NA	NA
chlordane	1.2E-16	NA	NA	NA
dieldrin	2.2E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-17	NA	NA	NA
octachlorodibenzofuran	5.1E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37f
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, WASTE PIT AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	3.1E-03	9.2E+01	NA	1.3E-01
Np_{237+1d}	1.2E-03	9.1E+01	NA	1.3E-01
Pu_{238}	1.7E-02	2.5E+01	NA	3.6E-02
$Pu_{239/240}$	3.9E-03	1.2E+02	NA	1.7E-01
Ra_{226+8d}	8.8E-01	2.9E+03	NA	4.2E+00
Ru_{106}	7.7E-03	2.6E+02	NA	3.7E-01
Sr_{90+1d}	6.3E-03	1.5E+02	NA	2.1E-01
Tc_{99}	3.2E-02	7.5E+02	NA	1.1E+00
Th_{230}	1.2E+00	3.0E+03	NA	4.3E+00
$Th_{232+10d}$	7.3E-02	2.1E+02	NA	3.0E-01
U_{234}	1.7E+00	2.7E+03	NA	3.9E+00
$U_{235/236}$	1.6E-01	1.2E+02	NA	1.7E-01
U_{238+2d}	2.0E+00	6.0E+03	NA	8.6E+00
Rn_{222+4d}	1.2E+04	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	1.4E-10	1.6E-06	1.9E-08	NA
beryllium	7.0E-12	7.3E-08	8.7E-09	NA
cadmium	4.3E-11	2.7E-07	3.3E-08	NA
chromium vi	1.4E-10	1.1E-06	1.3E-07	NA
nickel	1.9E-10	1.7E-06	1.0E-08	NA
benzene	2.9E-17	1.4E-10	8.4E-13	NA
bis(2-ethylhexyl)phthalate	3.7E-14	1.7E-07	8.3E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	9.8E-15	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.5E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.5E-14	1.3E-09	4.7E-09	NA
n-nitrosodiphenylamine	5.9E-14	NA	NA	NA
n-nitrosodipropylamine	5.9E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	9.8E-08	4.7E-11	2.3E-10	NA
trichloroethene	1.9E-07	8.5E-10	3.0E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.3E-13	8.0E-07	2.9E-06	NA
benzo(a)pyrene	1.5E-13	4.1E-07	1.5E-06	NA
benzo(b)fluoranthene	1.5E-13	1.1E-06	3.9E-06	NA
benzo(k)fluoranthene	1.4E-13	2.9E-09	1.0E-08	NA
chrysene	1.3E-13	8.0E-07	2.9E-06	NA
dibenzo(a,h)anthracene	4.1E-14	4.7E-08	1.7E-07	NA
indeno(1,2,3-cd)pyrene	9.2E-14	2.3E-07	8.3E-07	NA
aroclor-1254	1.8E-13	6.6E-10	4.7E-10	NA
aroclor-1260	3.5E-15	NA	NA	NA
4,4-ddt	5.3E-16	NA	NA	NA
4,4-dde	2.9E-16	NA	NA	NA
chlordane	2.3E-16	NA	NA	NA
dieldrin	1.7E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.3E-17	4.2E-11	1.5E-11	NA
octachlorodibenzofuran	7.4E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-37g
INTAKES FOR CARCINOGENS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SHOOTING RANGE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides	pCi/life	pCi/life	pCi/life	pCi/life
Cs_{137+1d}	3.5E-03	NA	NA	NA
Np_{237+1d}	1.2E-03	NA	NA	NA
Pu_{238}	5.2E-02	NA	NA	NA
$Pu_{239/240}$	6.6E-03	1.4E+02	NA	2.0E-01
Ra_{226+8d}	NA	NA	NA	NA
Ru_{106}	1.9E-03	NA	NA	NA
Sr_{90+1d}	1.1E-02	1.4E+02	NA	2.0E-01
Tc_{99}	1.3E-01	NA	NA	NA
Th_{230}	4.2E+00	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA
U_{234}	6.3E+00	3.0E+02	NA	4.3E-01
$U_{235/236}$	4.9E-01	6.8E+01	NA	9.7E-02
U_{238+2d}	6.3E+00	2.3E+02	NA	3.2E-01
Rn_{222+4d}	7.0E+03	NA	NA	NA
Chemicals	mg/Kg/day	mg/Kg/day	mg/Kg/day	
arsenic	5.9E-11	6.2E-07	7.5E-09	NA
beryllium	6.3E-12	3.4E-08	4.1E-09	NA
cadmium	2.3E-11	NA	NA	NA
chromium vi	1.1E-10	2.0E-06	2.4E-07	NA
nickel	1.2E-10	NA	NA	NA
benzene	3.3E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	4.5E-14	2.9E-09	1.4E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	2.0E-14	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	3.3E-14	NA	NA	NA
n-nitrosodiphenylamine	1.6E-14	NA	NA	NA
n-nitrosodipropylamine	6.3E-16	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.3E-08	NA	NA	NA
trichloroethene	2.5E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA
benzo(a)pyrene	1.9E-13	NA	NA	NA
benzo(b)fluoranthene	2.0E-13	NA	NA	NA
benzo(k)fluoranthene	1.7E-13	NA	NA	NA
chrysene	1.7E-13	NA	NA	NA
dibenzo(a,h)anthracene	6.1E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.3E-13	NA	NA	NA
aroclor-1254	3.5E-13	NA	NA	NA
aroclor-1260	3.9E-15	NA	NA	NA
4,4-ddt	6.3E-16	NA	NA	NA
4,4-dde	7.2E-16	NA	NA	NA
chlordane	1.1E-16	NA	NA	NA
dieldrin	2.0E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-17	NA	NA	NA
octachlorodibenzofuran	8.0E-18	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38a
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, PRODUCTION AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	1.1E-09	2.4E-06	2.9E-07	NA
aluminum	1.0E-05	1.9E-01	2.2E-02	NA
antimony	1.6E-08	3.5E-05	4.2E-06	NA
arsenic	1.0E-08	6.2E-05	7.5E-07	NA
barium	1.4E-07	1.1E-03	1.4E-04	NA
beryllium	1.3E-09	7.5E-06	9.0E-07	NA
boron	NA	NA	NA	NA
cadmium	5.2E-09	2.6E-05	3.1E-06	NA
chromium vi	2.3E-08	2.1E-04	2.6E-05	NA
cobalt	1.1E-08	1.3E-04	1.6E-05	NA
copper	4.6E-08	1.6E-04	1.9E-06	NA
lead	4.6E-07	5.4E-04	6.4E-05	NA
magnesium	3.4E-05	3.4E-01	4.1E-02	NA
manganese	1.1E-06	1.3E-02	1.5E-03	NA
mercury	4.1E-10	8.9E-07	5.3E-07	NA
molybdenum	9.7E-09	7.7E-05	9.3E-06	NA
nickel	2.6E-08	3.4E-04	2.0E-06	NA
selenium	8.3E-10	3.6E-06	4.4E-07	NA
silver	8.1E-09	3.8E-05	NA	NA
thallium	4.1E-10	4.9E-06	5.8E-07	NA
uranium-total	1.6E-06	1.6E-03	2.0E-04	NA
vanadium	2.6E-08	3.5E-04	4.2E-06	NA
zinc	2.7E-07	2.1E-03	2.5E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.3E-11	1.2E-06	5.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.5E-13	1.4E-08	4.9E-08	NA
1,1-dichloroethane	NA	4.1E-08	1.5E-07	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.4E-08	4.9E-08	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-06	1.2E-05	NA
methylene chloride	2.3E-11	2.3E-07	8.1E-07	NA
pyrene	NA	5.5E-06	2.0E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	1.8E-06	6.4E-06	NA
phenanthrene	NA	1.8E-06	6.6E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	7.1E-06	1.2E-07	5.8E-07	NA
toluene	NA	1.4E-08	4.9E-09	NA
1,1,1-trichloroethane	NA	2.1E-08	7.4E-08	NA
4,4-ddt	3.4E-13	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	3.5E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38b
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.2E-10	3.6E-06	4.4E-07	NA
aluminum	1.0E-05	1.9E-01	2.2E-02	NA
antimony	1.6E-08	3.5E-05	4.2E-06	NA
arsenic	1.0E-08	6.2E-05	7.5E-07	NA
barium	1.4E-07	1.1E-03	1.4E-04	NA
beryllium	1.3E-09	7.5E-06	9.0E-07	NA
boron	NA	NA	NA	NA
cadmium	5.2E-09	2.6E-05	3.1E-06	NA
chromium vi	2.3E-08	2.1E-04	2.6E-05	NA
cobalt	1.1E-08	1.3E-04	1.6E-05	NA
copper	4.6E-08	1.6E-04	1.9E-06	NA
lead	4.6E-07	5.4E-04	6.4E-05	NA
magnesium	3.4E-05	3.4E-01	4.1E-02	NA
manganese	1.1E-06	1.3E-02	1.5E-03	NA
mercury	4.1E-10	8.9E-07	5.3E-07	NA
molybdenum	9.7E-09	7.7E-05	9.3E-06	NA
nickel	2.6E-08	3.4E-04	2.0E-06	NA
selenium	8.3E-10	3.6E-06	4.4E-07	NA
silver	8.1E-09	3.8E-05	NA	NA
thallium	4.1E-10	4.9E-06	5.8E-07	NA
uranium-total	1.6E-06	1.6E-03	2.0E-04	NA
vanadium	2.6E-08	3.5E-04	4.2E-06	NA
zinc	2.7E-07	2.1E-03	2.5E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.3E-11	1.2E-06	5.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.5E-13	1.4E-08	4.9E-08	NA
1,1-dichloroethane	NA	4.1E-08	1.5E-07	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.4E-08	4.9E-08	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-06	1.2E-05	NA
methylene chloride	2.3E-11	2.3E-07	8.1E-07	NA
pyrene	NA	5.5E-06	2.0E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	1.8E-06	6.4E-06	NA
phenanthrene	NA	1.8E-06	6.6E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	7.1E-06	1.2E-07	5.8E-07	NA
toluene	NA	1.4E-08	4.9E-09	NA
1,1,1-trichloroethane	NA	2.1E-08	7.4E-08	NA
4,4-ddt	3.4E-13	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	3.5E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38c
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	6.4E-10	3.7E-06	4.4E-07	NA
aluminum	1.0E-05	1.9E-01	2.2E-02	NA
antimony	1.6E-08	3.5E-05	4.2E-06	NA
arsenic	1.0E-08	6.2E-05	7.5E-07	NA
barium	1.4E-07	1.1E-03	1.4E-04	NA
beryllium	1.3E-09	7.5E-06	9.0E-07	NA
boron	NA	NA	NA	NA
cadmium	5.2E-09	2.6E-05	3.1E-06	NA
chromium vi	2.3E-08	2.1E-04	2.6E-05	NA
cobalt	1.1E-08	1.3E-04	1.6E-05	NA
copper	4.6E-08	1.6E-04	1.9E-06	NA
lead	4.6E-07	5.4E-04	6.4E-05	NA
magnesium	3.4E-05	3.4E-01	4.1E-02	NA
manganese	1.1E-06	1.3E-02	1.5E-03	NA
mercury	4.1E-10	8.9E-07	5.3E-07	NA
molybdenum	9.7E-09	7.7E-05	9.3E-06	NA
nickel	2.6E-08	3.4E-04	2.0E-06	NA
selenium	8.3E-10	3.6E-06	4.4E-07	NA
silver	8.1E-09	3.8E-05	NA	NA
thallium	4.1E-10	4.9E-06	5.8E-07	NA
uranium-total	1.6E-06	1.6E-03	2.0E-04	NA
vanadium	2.6E-08	3.5E-04	4.2E-06	NA
zinc	2.7E-07	2.1E-03	2.5E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.3E-11	1.2E-06	5.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.5E-13	1.4E-08	4.9E-08	NA
1,1-dichloroethane	NA	4.1E-08	1.5E-07	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.4E-08	4.9E-08	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-06	1.2E-05	NA
methylene chloride	2.3E-11	2.3E-07	8.1E-07	NA
pyrene	NA	5.5E-06	2.0E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	1.8E-06	6.4E-06	NA
phenanthrene	NA	1.8E-06	6.6E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	7.1E-06	1.2E-07	5.8E-07	NA
toluene	NA	1.4E-08	4.9E-09	NA
1,1,1-trichloroethane	NA	2.1E-08	7.4E-08	NA
4,4-ddt	3.4E-13	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	3.5E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38d
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.7E-10	4.1E-06	4.9E-07	NA
aluminum	5.7E-06	5.7E-02	6.8E-03	NA
antimony	8.9E-09	7.3E-05	8.7E-06	NA
arsenic	5.7E-09	NA	NA	NA
barium	8.3E-08	NA	NA	NA
beryllium	6.9E-10	9.6E-06	1.2E-06	NA
boron	NA	NA	NA	NA
cadmium	2.2E-09	1.9E-05	2.3E-06	NA
chromium vi	1.1E-08	9.1E-05	1.1E-05	NA
cobalt	5.7E-09	NA	NA	NA
copper	2.3E-08	9.3E-05	1.1E-06	NA
lead	4.6E-07	4.2E-04	5.1E-05	NA
magnesium	1.7E-05	1.2E-01	1.5E-02	NA
manganese	5.7E-07	NA	NA	NA
mercury	2.3E-10	NA	NA	NA
molybdenum	4.3E-09	5.6E-05	6.7E-06	NA
nickel	1.2E-08	1.0E-04	6.2E-07	NA
selenium	5.1E-10	5.5E-06	6.6E-07	NA
silver	4.3E-09	6.0E-05	NA	NA
thallium	1.5E-10	NA	NA	NA
uranium-total	1.5E-06	9.6E-05	1.2E-05	NA
vanadium	1.4E-08	NA	NA	NA
zinc	6.9E-08	4.3E-04	5.1E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.0E-12	3.5E-07	1.7E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	2.7E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	3.7E-12	NA	NA	NA
pyrene	NA	4.0E-07	1.5E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.7E-06	2.1E-08	9.9E-08	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	8.6E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.9E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38e
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	2.7E-10	3.0E-06	3.6E-07	NA
aluminum	5.4E-06	6.5E-02	7.8E-03	NA
antimony	1.1E-08	NA	NA	NA
arsenic	6.6E-09	NA	NA	NA
barium	8.9E-08	6.8E-04	8.1E-05	NA
beryllium	6.9E-10	1.2E-05	1.4E-06	NA
boron	NA	NA	NA	NA
cadmium	2.2E-09	8.9E-06	1.1E-06	NA
chromium vi	1.0E-08	NA	NA	NA
cobalt	5.7E-09	NA	NA	NA
copper	1.6E-08	9.4E-05	1.1E-06	NA
lead	1.7E-07	NA	NA	NA
magnesium	1.5E-05	NA	NA	NA
manganese	6.0E-07	8.5E-03	1.0E-03	NA
mercury	2.5E-10	NA	NA	NA
molybdenum	4.0E-09	NA	NA	NA
nickel	1.2E-08	NA	NA	NA
selenium	6.3E-10	NA	NA	NA
silver	4.3E-09	3.3E-06	NA	NA
thallium	1.6E-10	NA	NA	NA
uranium-total	1.7E-06	6.5E-04	7.8E-05	NA
vanadium	1.3E-08	NA	NA	NA
zinc	6.6E-08	5.8E-04	7.0E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	9.7E-12	4.8E-06	2.3E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	1.8E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.3E-06	4.7E-06	NA
methylene chloride	2.6E-12	NA	NA	NA
pyrene	NA	1.0E-06	3.7E-06	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	7.5E-07	2.7E-06	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	2.1E-06	1.4E-08	6.6E-08	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	8.0E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	3.1E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38f
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, WASTE PIT AREA

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	3.4E-10	1.0E-05	1.2E-06	NA
aluminum	1.1E-05	1.1E-01	1.3E-02	NA
antimony	3.1E-08	2.1E-04	2.5E-05	NA
arsenic	2.0E-08	2.4E-04	2.8E-06	NA
barium	1.1E-07	1.2E-03	1.4E-04	NA
beryllium	1.0E-09	1.1E-05	1.3E-06	NA
boron	NA	NA	NA	NA
cadmium	6.3E-09	4.0E-05	4.8E-06	NA
chromium vi	2.0E-08	1.6E-04	1.9E-05	NA
cobalt	1.1E-08	1.6E-04	1.9E-05	NA
copper	2.6E-08	3.0E-04	3.6E-06	NA
lead	8.3E-08	4.5E-04	5.4E-05	NA
magnesium	2.5E-05	NA	NA	NA
manganese	1.3E-06	1.5E-02	1.8E-03	NA
mercury	2.0E-10	NA	NA	NA
molybdenum	6.0E-09	7.6E-05	9.1E-06	NA
nickel	2.8E-08	2.5E-04	1.5E-06	NA
selenium	9.4E-10	2.3E-05	2.7E-06	NA
silver	1.1E-08	7.2E-05	NA	NA
thallium	4.6E-10	NA	NA	NA
uranium-total	4.9E-07	5.5E-04	6.6E-05	NA
vanadium	2.6E-08	2.7E-04	3.2E-06	NA
zinc	1.1E-07	7.0E-04	8.4E-05	NA
acetone	NA	5.4E-07	1.9E-07	NA
bis(2-ethylhexyl)phthalate	5.4E-12	2.5E-05	1.2E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	2.1E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	2.3E-04	8.4E-04	NA
methylene chloride	3.7E-12	1.9E-07	6.9E-07	NA
pyrene	NA	1.9E-05	6.7E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	1.2E-04	4.4E-04	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	1.4E-05	6.9E-09	3.3E-08	NA
toluene	NA	9.6E-08	3.4E-08	NA
1,1,1-trichloroethane	NA	1.4E-08	4.9E-08	NA
4,4-ddt	7.7E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.5E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VI-38g
INTAKES FOR TOXICANTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SHOOTING RANGE

Transfer Media:	Air	Soil		
Exposure Pathways:	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Toxicants	mg/Kg/day	mg/Kg/day	mg/Kg/day	
cyanide	6.6E-10	1.4E-05	1.6E-06	NA
aluminum	8.3E-06	5.7E-02	6.8E-03	NA
antimony	1.3E-08	2.8E-05	3.4E-06	NA
arsenic	8.6E-09	9.1E-05	1.1E-06	NA
barium	1.1E-07	6.1E-04	7.3E-05	NA
beryllium	9.1E-10	5.0E-06	6.0E-07	NA
boron	NA	NA	NA	NA
cadmium	3.4E-09	NA	NA	NA
chromium vi	1.6E-08	2.9E-04	3.5E-05	NA
cobalt	8.3E-09	NA	NA	NA
copper	4.3E-08	1.2E-04	1.5E-06	NA
lead	1.1E-06	1.5E-02	1.8E-03	NA
magnesium	2.7E-05	NA	NA	NA
manganese	8.3E-07	6.4E-03	7.6E-04	NA
mercury	3.1E-10	4.3E-05	2.6E-05	NA
molybdenum	7.1E-09	5.8E-05	7.0E-06	NA
nickel	1.8E-08	NA	NA	NA
selenium	6.0E-10	NA	NA	NA
silver	6.9E-09	NA	NA	NA
thallium	2.4E-10	NA	NA	NA
uranium-total	1.5E-06	1.3E-04	1.6E-05	NA
vanadium	2.1E-08	NA	NA	NA
zinc	1.0E-07	6.0E-04	7.2E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.6E-12	4.3E-07	2.0E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	3.1E-14	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	4.9E-12	NA	NA	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	9.1E-14	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	2.9E-14	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

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TABLE A.VII-1a
ILCRs FOR GROUNDSKEEPER
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	3.8E-13	NA	NA	NA
Np_{237+1d}	1.9E-10	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	1.6E-08	8.9E-08	NA	6.2E-11
$Pu_{239/240}$	1.6E-09	NA	NA	NA
Ra_{226+5d}	8.2E-09	1.9E-07	NA	5.3E-05
Ra_{228+1d}	1.6E-09	NA	NA	NA
Ru_{106}	2.7E-12	NA	NA	NA
Sr_{90+1d}	2.7E-12	3.8E-08	NA	ND
Tc_{99}	2.0E-12	NA	NA	NA
Th_{228+7d}	4.5E-08	NA	NA	NA
Th_{230}	3.3E-07	3.0E-08	NA	6.8E-10
Th_{232}	3.9E-08	NA	NA	NA
U_{234}	1.0E-06	2.8E-07	NA	2.9E-09
$U_{235/236}$	7.5E-08	1.9E-08	NA	1.5E-06
U_{238+2d}	2.1E-06	7.2E-07	NA	5.1E-06
Rn_{222+4d}	3.5E-06	NA	NA	NA
Total Radionuclides	7.2E-06	1.4E-06		6.0E-05
Chemicals				
arsenic	2.1E-09	7.1E-06	4.3E-07	NA
beryllium	1.3E-10	1.4E-06	1.4E-06	NA
cadmium	3.4E-10	ND	ND	NA
chromium vi	1.1E-08	ND	ND	NA
nickel	2.6E-10	ND	ND	NA
benzene	2.7E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.9E-10	1.5E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	1.7E-09	3.3E-08	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.0E-16	NA	NA	NA
1,1-dichloroethene	NA	1.3E-09	2.5E-08	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.6E-16	3.4E-11	5.9E-10	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	5.5E-11	1.8E-11	4.6E-10	NA
trichloroethene	3.3E-10	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	5.9E-13	6.9E-08	6.9E-08	NA
benzo(a)pyrene	4.7E-12	4.1E-06	4.1E-06	NA
benzo(b)fluoranthene	5.8E-13	6.3E-07	6.3E-07	NA
benzo(k)fluoranthene	2.0E-13	2.0E-07	2.0E-07	NA
chrysene	4.1E-15	5.6E-09	5.6E-09	NA
dibenzo(a,h)anthracene	1.3E-12	1.0E-06	1.0E-06	NA
indeno(1,2,3-cd)pyrene	8.3E-13	9.1E-07	9.1E-07	NA
aroclor-1254	ND	5.4E-07	2.5E-06	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	6.9E-16	NA	NA	NA
dieldrin	1.9E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.4E-15	NA	NA	NA
octachlorodibenzofuran	3.4E-15	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E-08	1.6E-05	1.1E-05	
Sum Chem (BaP for PAHs):	1.5E-08	2.8E-05	2.3E-05	
TOTAL ALL (TEF Approach):	7.2E-06	1.7E-05	1.1E-05	6.0E-05
TOTAL ALL (BaP Approach):	7.2E-06	2.9E-05	2.3E-05	6.0E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1b
ILCRs FOR GROUNDSKEEPER
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	4.5E-13	2.1E-08	NA	8.2E-06
Np_{237+1d}	4.0E-10	9.8E-08	NA	1.0E-06
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	1.5E-08	8.4E-07	NA	5.8E-10
$Pu_{239/240}$	1.8E-09	2.4E-07	NA	1.5E-10
Ra_{226+5d}	1.3E-08	1.3E-07	NA	3.5E-05
Ra_{228+1d}	1.8E-09	3.1E-06	NA	4.9E-04
Ru_{106}	8.2E-12	NA	NA	NA
Sr_{90+1d}	3.6E-12	2.2E-08	NA	ND
Tc_{99}	2.3E-12	4.1E-09	NA	1.0E-11
Th_{228+7d}	4.6E-08	9.0E-07	NA	5.0E-04
Th_{230}	4.7E-07	8.3E-07	NA	1.9E-08
Th_{232}	3.2E-08	2.7E-07	NA	3.2E-09
U_{234}	1.1E-06	7.4E-06	NA	7.6E-08
$U_{235/236}$	8.7E-08	6.3E-07	NA	5.2E-05
U_{238+2d}	2.3E-06	1.4E-05	NA	9.6E-05
Rn_{222+4d}	5.5E-06	NA	NA	NA
Total Radionuclides	9.6E-06	2.8E-05		1.2E-03
Chemicals				
arsenic	2.9E-09	7.5E-06	4.5E-07	NA
beryllium	1.9E-10	2.2E-06	2.2E-06	NA
cadmium	4.4E-10	ND	ND	NA
chromium vi	1.6E-08	ND	ND	NA
nickel	3.7E-10	ND	ND	NA
benzene	4.1E-18	5.1E-11	1.6E-12	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-09	3.3E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	1.5E-09	2.9E-08	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.0E-16	NA	NA	NA
1,1-dichloroethene	NA	8.5E-10	1.6E-08	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.3E-16	5.2E-11	9.0E-10	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.5E-11	2.2E-10	5.6E-09	NA
trichloroethene	4.6E-10	1.3E-10	2.3E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.1E-12	6.2E-08	6.2E-08	NA
benzo(a)pyrene	8.1E-12	2.8E-06	2.8E-06	NA
benzo(b)fluoranthene	1.1E-12	4.7E-07	4.7E-07	NA
benzo(k)fluoranthene	3.1E-13	1.6E-07	1.6E-07	NA
chrysene	7.7E-15	4.1E-09	4.1E-09	NA
dibenzo(a,h)anthracene	2.3E-12	9.9E-07	9.9E-07	NA
indeno(1,2,3-cd)pyrene	1.5E-12	7.0E-07	7.0E-07	NA
aroclor-1254	ND	1.1E-05	5.0E-05	NA
aroclor-1260	ND	2.4E-06	1.1E-05	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.2E-15	NA	NA	NA
dieldrin	2.8E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-14	NA	NA	NA
octachlorodibenzofuran	5.2E-15	NA	NA	NA
Sum Chem (TEF for PAHs):	2.1E-08	2.8E-05	6.9E-05	
Sum Chem (BaP for PAHs):	2.1E-08	3.7E-05	7.8E-05	
TOTAL ALL (TEF Approach):	9.6E-06	5.6E-05	6.9E-05	1.2E-03
TOTAL ALL (BaP Approach):	9.6E-06	6.5E-05	7.8E-05	1.2E-03

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1c
ILCRs FOR GROUNDSKEEPER
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	4.3E-13	1.7E-08	NA	6.7E-06
Np_{237+1d}	2.5E-10	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	5.4E-09	NA	NA	NA
$Pu_{239/240}$	9.5E-10	2.2E-07	NA	1.4E-10
Ra_{226+5d}	7.5E-08	3.6E-07	NA	9.9E-05
Ra_{228+1d}	1.6E-09	5.2E-07	NA	8.2E-05
Ru_{106}	4.2E-12	NA	NA	NA
Sr_{90+1d}	4.4E-12	7.6E-08	NA	ND
Tc_{99}	2.9E-12	4.1E-09	NA	1.0E-11
Th_{228+7d}	3.3E-08	1.8E-07	NA	9.9E-05
Th_{230}	7.3E-07	1.9E-07	NA	4.2E-09
Th_{232}	2.8E-08	3.8E-08	NA	4.5E-10
U_{234}	5.9E-07	2.3E-06	NA	2.3E-08
$U_{235/236}$	4.7E-08	1.0E-07	NA	8.5E-06
U_{238+2d}	1.3E-06	4.2E-06	NA	3.0E-05
Rn_{222+4d}	4.5E-05	NA	NA	NA
Total Radionuclides	4.8E-05	8.2E-06		3.2E-04
Chemicals				
arsenic	2.4E-09	1.1E-05	6.8E-07	NA
beryllium	1.8E-10	1.5E-06	1.5E-06	NA
cadmium	4.8E-10	ND	ND	NA
chromium vi	1.6E-08	ND	ND	NA
nickel	3.6E-10	ND	ND	NA
benzene	2.2E-17	2.0E-11	6.5E-13	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-08	4.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	4.5E-10	8.7E-09	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.1E-16	6.0E-10	1.0E-08	NA
1,1-dichloroethene	NA	8.3E-09	1.6E-07	NA
1,2-dichloroethane	NA	6.4E-11	1.2E-09	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.3E-15	1.3E-10	2.3E-09	NA
n-nitrosodiphenylamine	ND	1.2E-09	2.2E-08	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.3E-10	8.7E-09	2.2E-07	NA
trichloroethene	8.0E-10	3.5E-10	6.1E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	3.0E-12	3.5E-07	3.5E-07	NA
benzo(a)pyrene	2.6E-11	2.8E-05	2.8E-05	NA
benzo(b)fluoranthene	2.3E-12	1.4E-06	1.4E-06	NA
benzo(k)fluoranthene	1.2E-12	5.0E-07	5.0E-07	NA
chrysene	1.3E-14	9.2E-09	9.2E-09	NA
dibenzo(a,h)anthracene	8.5E-12	8.7E-06	8.7E-06	NA
indeno(1,2,3-cd)pyrene	2.9E-12	5.6E-06	5.6E-06	NA
aroclor-1254	ND	4.3E-06	2.0E-05	NA
aroclor-1260	ND	7.5E-06	3.5E-05	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	8.2E-16	NA	NA	NA
dieldrin	1.6E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	1.7E-07	5.8E-07	NA
octachlorodibenzo-p-dioxin	2.6E-14	5.8E-08	2.0E-07	NA
octachlorodibenzofuran	2.9E-14	6.8E-08	2.4E-07	NA
Sum Chem (TEF for PAHs):	2.0E-08	7.0E-05	1.0E-04	
Sum Chem (BaP for PAHs):	2.0E-08	1.1E-04	1.4E-04	
TOTAL ALL (TEF Approach):	4.8E-05	7.8E-05	1.0E-04	3.2E-04
TOTAL ALL (BaP Approach):	4.8E-05	1.1E-04	1.4E-04	3.2E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1d
ILCRs FOR GROUNDSKEEPER
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	3.1E-13	1.1E-08	NA	4.3E-06
Np_{237+1d}	2.0E-10	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	3.8E-09	3.0E-07	NA	2.1E-10
$Pu_{239/240}$	1.1E-09	8.6E-08	NA	5.5E-11
Ra_{226+5d}	2.3E-08	2.5E-07	NA	7.0E-05
Ra_{228+1d}	5.2E-10	1.9E-06	NA	3.0E-04
Ru_{106}	1.8E-11	NA	NA	NA
Sr_{90+1d}	2.9E-12	5.0E-08	NA	ND
Tc_{99}	1.7E-12	6.8E-09	NA	1.7E-11
Th_{228+7d}	2.2E-08	1.1E-06	NA	6.0E-04
Th_{230}	1.8E-07	2.6E-07	NA	5.9E-09
Th_{232}	9.5E-09	2.0E-07	NA	2.4E-09
U_{234}	3.9E-07	1.4E-06	NA	1.5E-08
$U_{235/236}$	3.4E-08	1.1E-07	NA	8.8E-06
U_{238+2d}	8.4E-07	8.0E-06	NA	5.6E-05
Rn_{222+4d}	4.8E-05	NA	NA	NA
Total Radionuclides	4.9E-05	1.4E-05		1.0E-03
Chemicals				
arsenic	3.0E-09	4.6E-06	2.8E-07	NA
beryllium	1.7E-10	1.2E-06	1.2E-06	NA
cadmium	6.6E-10	ND	ND	NA
chromium vi	1.9E-08	ND	ND	NA
nickel	4.3E-10	ND	ND	NA
benzene	7.8E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.7E-10	1.2E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	9.6E-17	8.5E-12	1.5E-10	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.1E-16	3.7E-11	6.3E-10	NA
n-nitrosodiphenylamine	ND	2.2E-09	4.3E-08	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.1E-10	1.2E-10	3.0E-09	NA
trichloroethene	1.3E-09	1.2E-11	2.0E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	7.5E-13	2.0E-09	2.0E-09	NA
benzo(a)pyrene	6.0E-12	1.7E-07	1.7E-07	NA
benzo(b)fluoranthene	7.9E-13	2.5E-08	2.5E-08	NA
benzo(k)fluoranthene	3.1E-13	7.4E-09	7.4E-09	NA
chrysene	5.5E-15	2.4E-10	2.4E-10	NA
dibenzo(a,h)anthracene	1.7E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.2E-12	NA	NA	NA
aroclor-1254	ND	1.2E-06	5.6E-06	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	2.6E-15	NA	NA	NA
dieldrin	2.3E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.3E-14	NA	NA	NA
octachlorodibenzofuran	9.9E-15	NA	NA	NA
Sum Chem (TEF for PAHs):	2.5E-08	7.3E-06	7.3E-06	
Sum Chem (BaP for PAHs):	2.5E-08	7.7E-06	7.7E-06	
TOTAL ALL (TEF Approach):	4.9E-05	2.1E-05	7.3E-06	1.0E-03
TOTAL ALL (BaP Approach):	4.9E-05	2.1E-05	7.7E-06	1.0E-03

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1e
ILCRs FOR GROUNDSKEEPER
AREA 5, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	3.3E-14	3.4E-09	NA	2.2E-06
Np_{237+1d}	1.2E-11	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	3.7E-10	2.5E-08	NA	2.9E-11
$Pu_{239/240}$	1.5E-10	5.8E-08	NA	6.3E-11
Ra_{226+5d}	1.7E-09	NA	NA	NA
Ra_{228+1d}	5.9E-11	5.1E-08	NA	1.3E-05
Ru_{106}	6.5E-13	NA	NA	NA
Sr_{90+1d}	2.9E-13	1.6E-08	NA	ND
Tc_{99}	2.9E-13	3.1E-09	NA	1.3E-11
Th_{228+7d}	2.9E-09	1.8E-08	NA	1.7E-05
Th_{230}	1.3E-08	1.5E-08	NA	5.8E-10
Th_{232}	9.8E-10	5.5E-09	NA	1.1E-10
U_{234}	3.4E-08	5.1E-07	NA	8.7E-09
$U_{235/236}$	2.8E-09	2.7E-08	NA	3.7E-06
U_{238+2d}	7.5E-08	8.5E-07	NA	1.0E-05
Rn_{222+4d}	2.2E-06	NA	NA	NA
Total Radionuclides	2.3E-06	1.6E-06		4.6E-05
Chemicals				
arsenic	2.3E-10	NA	NA	NA
beryllium	1.6E-11	1.3E-07	1.3E-07	NA
cadmium	6.2E-11	ND	ND	NA
chromium vi	1.6E-09	ND	ND	NA
nickel	3.8E-11	ND	ND	NA
benzene	3.4E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.9E-10	1.0E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	4.4E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-17	8.1E-11	1.4E-09	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	5.5E-11	4.3E-10	1.1E-08	NA
trichloroethene	3.3E-10	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.6E-13	1.5E-08	1.5E-08	NA
benzo(a)pyrene	1.4E-12	5.7E-07	5.7E-07	NA
benzo(b)fluoranthene	2.3E-13	3.4E-07	3.4E-07	NA
benzo(k)fluoranthene	8.1E-14	3.9E-09	3.9E-09	NA
chrysene	1.5E-15	1.7E-09	1.7E-09	NA
dibenzo(a,h)anthracene	4.9E-13	2.2E-08	2.2E-08	NA
indeno(1,2,3-cd)pyrene	3.3E-13	1.8E-08	1.8E-08	NA
aroclor-1254	ND	1.7E-08	7.8E-08	NA
aroclor-1260	ND	4.9E-07	2.3E-06	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.2E-16	NA	NA	NA
dieldrin	1.3E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.4E-15	NA	NA	NA
octachlorodibenzofuran	4.4E-15	NA	NA	NA
Sum Chem (TEF for PAHs):	2.3E-09	1.6E-06	3.4E-06	
Sum Chem (BaP for PAHs):	2.3E-09	4.6E-06	6.4E-06	
TOTAL ALL (TEF Approach):	2.3E-06	3.2E-06	3.4E-06	4.6E-05
TOTAL ALL (BaP Approach):	2.3E-06	6.2E-06	6.4E-06	4.6E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1f
ILCRs FOR GROUNDSKEEPER
AREA 6, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.6E-14	1.4E-09	NA	8.9E-07
Np_{237+1d}	1.0E-11	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	4.1E-10	2.9E-08	NA	3.4E-11
$Pu_{239/240}$	7.3E-11	3.0E-08	NA	3.2E-11
Ra_{226+5d}	1.1E-09	1.9E-07	NA	8.9E-05
Ra_{228+1d}	1.7E-10	8.3E-08	NA	2.2E-05
Ru_{106}	2.2E-13	NA	NA	NA
Sr_{90+1d}	3.7E-13	9.9E-09	NA	ND
Tc_{99}	9.6E-13	2.6E-08	NA	1.1E-10
Th_{228+7d}	3.1E-09	2.5E-08	NA	2.4E-05
Th_{230}	9.1E-08	1.2E-07	NA	4.7E-09
Th_{232}	3.1E-09	1.1E-08	NA	2.1E-10
U_{234}	6.8E-08	2.3E-06	NA	3.9E-08
$U_{235/236}$	4.3E-09	5.8E-08	NA	7.9E-06
U_{238+2d}	1.2E-07	1.5E-06	NA	1.8E-05
Rn_{222+4d}	9.0E-07	NA	NA	NA
Total Radionuclides	1.2E-06	4.4E-06		1.6E-04
Chemicals				
arsenic	2.3E-10	NA	NA	NA
beryllium	1.5E-11	2.7E-07	2.7E-07	NA
cadmium	4.4E-11	NA	NA	NA
chromium vi	1.4E-09	ND	ND	NA
nickel	3.0E-11	ND	ND	NA
benzene	3.4E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	6.4E-18	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.0E-17	4.8E-12	8.2E-11	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.0E-12	NA	NA	NA
trichloroethene	4.3E-11	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	5.5E-14	3.2E-09	3.2E-09	NA
benzo(a)pyrene	4.2E-13	3.4E-07	3.4E-07	NA
benzo(b)fluoranthene	5.7E-14	7.9E-08	7.9E-08	NA
benzo(k)fluoranthene	2.0E-14	2.4E-08	2.4E-08	NA
chrysene	3.6E-16	2.1E-10	2.1E-10	NA
dibenzo(a,h)anthracene	1.4E-13	1.4E-07	1.4E-07	NA
indeno(1,2,3-cd)pyrene	7.8E-14	1.5E-07	1.5E-07	NA
aroclor-1254	ND	4.5E-08	2.1E-07	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	3.6E-17	NA	NA	NA
dieldrin	7.0E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.6E-16	NA	NA	NA
octachlorodibenzofuran	4.3E-16	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E-09	1.1E-06	1.2E-06	
Sum Chem (BaP for PAHs):	1.7E-09	2.5E-06	2.7E-06	
TOTAL ALL (TEF Approach):	1.2E-06	5.4E-06	1.2E-06	1.6E-04
TOTAL ALL (BaP Approach):	1.2E-06	6.9E-06	2.7E-06	1.6E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1g
ILCRs FOR GROUNDSKEEPER
AREA 7, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.4E-14	1.8E-09	NA	1.2E-06
Np_{237+1d}	8.6E-12	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	2.8E-10	NA	NA	NA
$Pu_{239/240}$	5.2E-11	NA	NA	NA
Ra_{226+5d}	3.6E-09	1.3E-08	NA	5.8E-06
Ra_{228+1d}	1.3E-10	1.3E-08	NA	3.4E-06
Ru_{106}	2.2E-13	NA	NA	NA
Sr_{90+1d}	2.6E-13	4.5E-09	NA	ND
Tc_{99}	3.1E-13	1.5E-10	NA	6.2E-13
Th_{228+7d}	2.2E-09	7.5E-09	NA	6.9E-06
Th_{230}	7.1E-08	2.8E-09	NA	1.1E-10
Th_{232}	2.0E-09	1.7E-09	NA	3.3E-11
U_{234}	3.4E-08	1.7E-08	NA	3.0E-10
$U_{235/236}$	2.4E-09	1.3E-09	NA	1.8E-07
U_{238+2d}	6.7E-08	3.3E-08	NA	3.8E-07
Rn_{222+4d}	1.5E-06	NA	NA	NA
Total Radionuclides	1.7E-06	9.5E-08		1.8E-05
Chemicals				
arsenic	1.9E-10	NA	NA	NA
beryllium	1.3E-11	2.1E-07	2.1E-07	NA
cadmium	3.8E-11	ND	ND	NA
chromium vi	1.2E-09	ND	ND	NA
nickel	2.6E-11	ND	ND	NA
benzene	9.4E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.1E-11	7.9E-12	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.3E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	5.3E-17	4.0E-12	7.0E-11	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.5E-11	NA	NA	NA
trichloroethene	8.8E-11	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	9.6E-14	2.6E-10	2.6E-10	NA
benzo(a)pyrene	7.8E-13	1.8E-08	1.8E-08	NA
benzo(b)fluoranthene	8.8E-14	2.2E-09	2.2E-09	NA
benzo(k)fluoranthene	4.1E-14	1.0E-09	1.0E-09	NA
chrysene	5.6E-16	2.1E-11	2.1E-11	NA
dibenzo(a,h)anthracene	2.7E-13	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.3E-13	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	3.7E-17	NA	NA	NA
dieldrin	6.4E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-15	NA	NA	NA
octachlorodibenzofuran	1.2E-15	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E-09	2.3E-07	2.3E-07	
Sum Chem (BaP for PAHs):	1.5E-09	2.7E-07	2.7E-07	
TOTAL ALL (TEF Approach):	1.7E-06	3.2E-07	2.3E-07	1.8E-05
TOTAL ALL (BaP Approach):	1.7E-06	3.6E-07	2.7E-07	1.8E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1h
ILCRs FOR GROUNDSKEEPER
AREA 8, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	7.6E-15	1.9E-09	NA	1.2E-06
Np_{237+1d}	3.0E-12	1.6E-08	NA	2.8E-07
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	9.6E-11	NA	NA	NA
$Pu_{239/240}$	2.2E-11	NA	NA	NA
Ra_{226+5d}	2.4E-10	NA	NA	NA
Ra_{228+1d}	1.0E-11	NA	NA	NA
Ru_{106}	1.8E-13	NA	NA	NA
Sr_{90+1d}	4.0E-14	4.4E-09	NA	ND
Tc_{99}	4.4E-14	1.8E-10	NA	7.7E-13
Th_{228+7d}	6.4E-10	7.5E-09	NA	7.0E-06
Th_{230}	2.5E-09	2.0E-09	NA	7.6E-11
Th_{232}	2.7E-10	NA	NA	NA
U_{234}	6.4E-09	5.6E-09	NA	9.6E-11
$U_{235/236}$	5.7E-10	9.8E-10	NA	1.3E-07
U_{238+2d}	1.6E-08	1.2E-08	NA	1.5E-07
Rn_{222+4d}	4.2E-07	NA	NA	NA
Total Radionuclides	4.4E-07	5.1E-08		8.8E-06
Chemicals				
arsenic	1.0E-10	NA	NA	NA
beryllium	6.1E-12	3.4E-07	3.4E-07	NA
cadmium	2.5E-11	ND	ND	NA
chromium vi	5.8E-10	ND	ND	NA
nickel	1.6E-11	ND	ND	NA
benzene	2.6E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.0E-10	1.0E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.3E-18	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.3E-1[illegible]	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.6E-11	NA	NA	NA
trichloroethene	4.6E-10	2.2E-12	3.8E-11	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.7E-14	2.6E-10	2.6E-10	NA
benzo(a)pyrene	1.4E-13	NA	NA	NA
benzo(b)fluoranthene	2.1E-14	2.5E-09	2.5E-09	NA
benzo(k)fluoranthene	7.8E-15	1.1E-09	1.1E-09	NA
chrysene	1.5E-16	2.7E-11	2.7E-11	NA
dibenzo(a,h)anthracene	4.4E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.0E-14	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	3.1E-17	NA	NA	NA
dieldrin	3.0E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.2E-16	NA	NA	NA
octachlorodibenzofuran	3.4E-16	NA	NA	NA
Sum Chem (TEF for PAHs):	1.3E-09	3.4E-07	3.4E-07	
Sum Chem (BaP for PAHs):	1.3E-09	3.9E-07	3.9E-07	
TOTAL ALL (TEF Approach):	4.4E-07	3.9E-07	3.4E-07	8.8E-06
TOTAL ALL (BaP Approach):	4.4E-07	4.4E-07	3.9E-07	8.8E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1i
ILCRs FOR GROUNDSKEEPER
AREA 9, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	1.3E-14	2.7E-09	NA	1.8E-06
Np_{237+1d}	6.6E-12	2.1E-08	NA	3.7E-07
Pb_{210+2d}	NA	2.1E-06	NA	4.7E-09
Pu_{238}	1.4E-10	5.8E-09	NA	6.7E-12
$Pu_{239/240}$	2.9E-11	6.0E-09	NA	6.5E-12
Ra_{226+5d}	4.9E-10	3.6E-07	NA	1.7E-04
Ra_{228+1d}	1.8E-11	1.3E-08	NA	3.4E-06
Ru_{106}	6.3E-13	2.6E-09	NA	ND
Sr_{90+1d}	7.3E-14	4.7E-09	NA	ND
Tc_{99}	5.8E-14	1.4E-10	NA	5.8E-13
Th_{228+7d}	8.9E-10	4.0E-08	NA	3.7E-05
Th_{230}	6.1E-09	4.1E-08	NA	1.5E-09
Th_{232}	4.5E-10	2.7E-09	NA	5.3E-11
U_{234}	8.2E-09	4.6E-08	NA	7.8E-10
$U_{235/236}$	7.9E-10	2.0E-09	NA	2.7E-07
U_{238+2d}	2.2E-08	1.8E-07	NA	2.1E-06
Rn_{222+4d}	4.4E-07	NA	NA	NA
Total Radionuclides	4.8E-07	2.9E-06		2.1E-04
Chemicals				
arsenic	3.8E-10	8.6E-07	5.2E-08	NA
beryllium	1.1E-11	1.6E-07	1.6E-07	NA
cadmium	5.1E-11	ND	ND	NA
chromium vi	1.1E-09	ND	ND	NA
nickel	3.0E-11	ND	ND	NA
benzene	1.6E-19	4.3E-12	1.4E-13	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-09	6.5E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.2E-18	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	7.7E-18	1.0E-11	1.8E-10	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.5E-11	NA	NA	NA
trichloroethene	2.2E-10	3.2E-12	5.7E-11	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.1E-14	7.0E-09	7.0E-09	NA
benzo(a)pyrene	1.7E-13	3.5E-07	3.5E-07	NA
benzo(b)fluoranthene	2.1E-14	1.1E-07	1.1E-07	NA
benzo(k)fluoranthene	8.5E-15	1.1E-09	1.1E-09	NA
chrysene	1.4E-16	3.9E-10	3.9E-10	NA
dibenzo(a,h)anthracene	4.7E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.0E-14	3.9E-09	3.9E-09	NA
aroclor-1254	ND	5.3E-09	2.4E-08	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	5.9E-17	NA	NA	NA
dieldrin	5.2E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-15	6.6E-09	2.3E-08	NA
octachlorodibenzofuran	2.1E-16	NA	NA	NA
Sum Chem (TEF for PAHs):	1.8E-09	1.5E-06	7.2E-07	
Sum Chem (BaP for PAHs):	1.8E-09	2.4E-06	1.6E-06	
TOTAL ALL (TEF Approach):	4.9E-07	4.4E-06	7.2E-07	2.1E-04
TOTAL ALL (BaP Approach):	4.9E-07	5.3E-06	1.6E-06	2.1E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-1j
ILCRs FOR GROUNDSKEEPER
AREA 10, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	1.2E-14	1.3E-09	NA	8.8E-07
Np_{237+1d}	6.4E-12	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA
Pu_{238}	4.3E-10	NA	NA	NA
$Pu_{239/240}$	4.9E-11	8.1E-09	NA	8.7E-12
Ra_{226+5d}	4.6E-10	1.5E-08	NA	6.7E-06
Ra_{228+1d}	6.0E-11	1.0E-08	NA	2.8E-06
Ru_{106}	1.7E-13	NA	NA	NA
Sr_{90+1d}	1.0E-13	4.3E-09	NA	ND
Tc_{99}	1.2E-13	1.5E-10	NA	6.2E-13
Th_{228+7d}	1.5E-09	5.7E-09	NA	5.3E-06
Th_{230}	1.9E-08	2.6E-09	NA	9.9E-11
Th_{232}	1.1E-09	9.2E-10	NA	1.8E-11
U_{234}	3.0E-08	7.8E-09	NA	1.3E-10
$U_{235/236}$	2.2E-09	1.1E-09	NA	1.6E-07
U_{238+2d}	6.3E-08	3.5E-08	NA	4.1E-07
Rn_{222+4d}	2.7E-07	NA	NA	NA
Total Radionuclides	3.9E-07	9.2E-08		1.6E-05
Chemicals				
arsenic	1.6E-10	2.0E-06	1.2E-07	NA
beryllium	9.9E-12	3.4E-07	3.4E-07	NA
cadmium	2.8E-11	ND	ND	NA
chromium vi	8.6E-10	ND	ND	NA
nickel	1.9E-11	NA	NA	NA
benzene	1.4E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-10	3.7E-11	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	6.8E-12	1.3E-10	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.7E-18	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	7.7E-18	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	4.8E-12	7.6E-12	2.0E-10	NA
trichloroethene	2.9E-11	1.1E-12	1.9E-11	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.6E-14	3.6E-10	3.6E-10	NA
benzo(a)pyrene	1.9E-13	2.2E-08	2.2E-08	NA
benzo(b)fluoranthene	2.4E-14	2.9E-09	2.9E-09	NA
benzo(k)fluoranthene	8.5E-15	1.4E-09	1.4E-09	NA
chrysene	1.8E-16	3.1E-11	3.1E-11	NA
dibenzo(a,h)anthracene	5.7E-14	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.5E-14	4.9E-09	4.9E-09	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	2.7E-17	NA	NA	NA
dieldrin	6.1E-16	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.7E-16	NA	NA	NA
octachlorodibenzofuran	1.8E-16	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E-09	2.4E-06	4.9E-07	
Sum Chem (BaP for PAHs):	1.1E-09	2.4E-06	5.6E-07	
TOTAL ALL (TEF Approach):	3.9E-07	2.5E-06	4.9E-07	1.6E-05
TOTAL ALL (BaP Approach):	3.9E-07	2.5E-06	5.6E-07	1.6E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2a
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.4E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	NA	NA	NA
arsenic	ND	3.8E-02	2.3E-03	NA
barium	4.7E-05	1.8E-03	1.2E-03	NA
beryllium	ND	1.9E-04	1.1E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	1.1E-03	1.2E-02	NA
chromium vi	ND	3.4E-03	4.4E-03	NA
cobalt	1.3E-03	NA	NA	NA
copper	ND	2.4E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	2.8E-03	3.2E-02	NA
manganese	2.6E-03	8.0E-03	1.5E-01	NA
mercury	2.5E-07	5.5E-04	1.1E-02	NA
molybdenum	ND	1.4E-03	2.0E-03	NA
nickel	ND	1.2E-03	3.3E-04	NA
selenium	ND	8.2E-05	5.9E-05	NA
silver	ND	9.6E-04	ND	NA
thallium	ND	5.2E-03	3.0E-03	NA
uranium-total	ND	3.6E-02	4.2E-01	NA
vanadium	ND	3.7E-03	4.2E-03	NA
zinc	ND	4.2E-04	9.8E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.9E-06	1.5E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	6.5E-07	1.3E-05	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.1E-04	4.4E-03	NA
methylene chloride	3.2E-13	2.1E-07	3.6E-06	NA
pyrene	NA	1.1E-04	4.4E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	9.8E-08	2.5E-06	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	4.0E-03	1.1E-01	6.6E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2b
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	3.4E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	5.2E-02	2.0E-01	NA
arsenic	ND	4.0E-02	2.4E-03	NA
barium	7.5E-05	4.7E-03	3.0E-03	NA
beryllium	ND	2.9E-04	1.7E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	6.1E-03	7.0E-02	NA
chromium vi	ND	5.9E-03	7.5E-03	NA
cobalt	1.8E-03	NA	NA	NA
copper	ND	1.0E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	3.7E-03	NA	NA	NA
mercury	4.3E-07	3.6E-03	6.9E-02	NA
molybdenum	ND	2.0E-03	3.0E-03	NA
nickel	ND	1.3E-03	3.7E-04	NA
selenium	ND	2.3E-04	1.6E-04	NA
silver	ND	9.1E-04	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	3.4E-01	3.9E+00	NA
vanadium	ND	3.8E-03	4.4E-03	NA
zinc	ND	5.0E-04	1.1E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-05	3.3E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	4.3E-07	8.3E-06	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	8.8E-05	3.5E-03	NA
methylene chloride	4.8E-13	3.2E-07	5.5E-06	NA
pyrene	NA	9.8E-05	3.9E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.2E-06	3.0E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	5.6E-03	4.6E-01	4.2E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2c
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	3.1E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	NA	NA	NA
arsenic	ND	6.0E-02	3.6E-03	NA
barium	5.2E-05	5.0E-03	3.2E-03	NA
beryllium	ND	2.0E-04	1.1E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	4.0E-03	4.6E-02	NA
chromium vi	ND	9.9E-03	1.3E-02	NA
cobalt	1.6E-03	1.8E-04	2.3E-04	NA
copper	ND	2.3E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	3.3E-03	6.5E-03	1.2E-01	NA
mercury	2.7E-07	1.6E-03	3.0E-02	NA
molybdenum	ND	9.0E-04	1.4E-03	NA
nickel	ND	1.4E-03	4.1E-04	NA
selenium	ND	3.7E-04	2.7E-04	NA
silver	ND	1.4E-03	ND	NA
thallium	ND	5.5E-03	3.1E-03	NA
uranium-total	ND	2.0E-01	2.3E+00	NA
vanadium	ND	3.5E-03	4.1E-03	NA
zinc	ND	1.2E-03	2.8E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-04	4.6E-05	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	2.7E-05	4.7E-04	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	4.2E-06	8.1E-05	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.2E-04	4.9E-03	NA
methylene chloride	4.8E-12	8.0E-07	1.4E-05	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	4.7E-05	1.2E-03	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	5.0E-03	3.1E-01	2.6E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2d
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	7.3E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.0E-01	3.9E-01	NA
arsenic	ND	2.5E-02	1.5E-03	NA
barium	6.3E-05	1.3E-03	8.5E-04	NA
beryllium	ND	1.6E-04	9.3E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	5.7E-03	6.5E-02	NA
chromium vi	ND	5.0E-03	6.4E-03	NA
cobalt	2.1E-03	2.7E-04	3.5E-04	NA
copper	ND	6.1E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	3.6E-03	NA	NA	NA
mercury	3.2E-07	6.5E-04	1.3E-02	NA
molybdenum	ND	8.2E-04	1.2E-03	NA
nickel	ND	1.2E-03	3.5E-04	NA
selenium	ND	1.0E-04	7.3E-05	NA
silver	ND	8.9E-04	ND	NA
thallium	ND	7.0E-03	4.0E-03	NA
uranium-total	ND	3.8E-01	4.4E+00	NA
vanadium	ND	3.9E-03	4.5E-03	NA
zinc	ND	3.4E-04	7.8E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.7E-06	1.2E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	3.9E-07	6.8E-06	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-06	1.4E-04	NA
methylene chloride	4.3E-13	2.2E-07	3.9E-06	NA
pyrene	NA	3.3E-06	1.3E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	6.4E-07	1.6E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	5.7E-03	5.3E-01	4.8E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2e
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 5, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	8.2E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.1E-03	4.1E-03	NA
arsenic	ND	NA	NA	NA
barium	4.8E-06	1.6E-04	1.0E-04	NA
beryllium	ND	1.7E-05	9.9E-04	NA
boron	NA	NA	NA	NA
cadmium	ND	1.0E-03	1.2E-02	NA
chromium vi	ND	4.7E-04	6.0E-04	NA
cobalt	1.9E-04	3.6E-05	4.6E-05	NA
copper	ND	2.0E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	3.3E-04	1.4E-03	2.8E-02	NA
mercury	1.8E-08	NA	NA	NA
molybdenum	ND	1.3E-04	1.9E-04	NA
nickel	ND	1.8E-04	5.1E-05	NA
selenium	ND	2.2E-05	1.6E-05	NA
silver	ND	2.0E-04	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	2.4E-02	2.7E-01	NA
vanadium	ND	NA	NA	NA
zinc	ND	9.8E-04	2.3E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.9E-06	1.0E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.3E-05	5.2E-04	NA
methylene chloride	3.0E-14	4.9E-07	8.5E-06	NA
pyrene	NA	3.1E-05	1.2E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	2.3E-06	6.0E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	5.2E-04	3.0E-02	3.2E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2f
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 6, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.0E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	7.4E-03	2.8E-02	NA
arsenic	ND	NA	NA	NA
barium	3.8E-06	3.4E-04	2.2E-04	NA
beryllium	ND	3.6E-05	2.0E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	NA	NA	NA
chromium vi	ND	8.1E-04	1.0E-03	NA
cobalt	1.5E-04	3.6E-05	4.6E-05	NA
copper	ND	8.8E-05	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	3.0E-04	3.5E-03	NA
manganese	3.3E-04	2.0E-03	3.8E-02	NA
mercury	2.1E-08	5.5E-05	1.1E-03	NA
molybdenum	ND	2.3E-04	3.5E-04	NA
nickel	ND	2.0E-04	5.6E-05	NA
selenium	ND	NA	NA	NA
silver	ND	4.9E-05	ND	NA
thallium	ND	9.2E-04	5.3E-04	NA
uranium-total	ND	7.8E-02	9.0E-01	NA
vanadium	ND	9.3E-04	1.1E-03	NA
zinc	ND	2.0E-04	4.5E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	7.2E-07	2.9E-05	NA
methylene chloride	4.2E-14	2.9E-08	5.0E-07	NA
pyrene	NA	1.3E-06	5.3E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	4.8E-04	9.2E-02	9.7E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2g
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 7, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.9E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.3E-03	4.9E-03	NA
arsenic	ND	NA	NA	NA
barium	3.5E-06	2.7E-04	1.7E-04	NA
beryllium	ND	2.7E-05	1.5E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	2.6E-04	3.0E-03	NA
chromium vi	ND	3.8E-04	4.9E-04	NA
cobalt	1.2E-04	3.2E-05	4.1E-05	NA
copper	ND	5.7E-05	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	8.3E-04	9.6E-03	NA
manganese	2.5E-04	1.8E-03	3.5E-02	NA
mercury	1.6E-08	NA	NA	NA
molybdenum	ND	3.4E-04	5.1E-04	NA
nickel	ND	1.3E-04	3.7E-05	NA
selenium	ND	NA	NA	NA
silver	ND	1.3E-05	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	2.4E-03	2.8E-02	NA
vanadium	ND	6.0E-04	6.9E-04	NA
zinc	ND	2.6E-05	5.9E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.1E-07	7.9E-08	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.4E-07	1.4E-05	NA
methylene chloride	1.1E-13	2.5E-08	4.3E-07	NA
pyrene	NA	4.3E-07	1.7E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	3.7E-04	8.5E-03	8.3E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2b
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 8, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	3.6E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.1E-03	4.2E-03	NA
arsenic	ND	NA	NA	NA
barium	1.5E-06	2.0E-04	1.2E-04	NA
beryllium	ND	4.4E-05	2.5E-03	NA
boron	NA	2.2E-05	2.5E-04	NA
cadmium	ND	2.3E-04	2.7E-03	NA
chromium vi	ND	3.9E-04	5.0E-04	NA
cobalt	7.3E-05	2.7E-05	3.5E-05	NA
copper	ND	6.1E-05	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	2.5E-04	2.9E-03	NA
manganese	1.3E-04	9.3E-04	1.8E-02	NA
mercury	4.2E-09	NA	NA	NA
molybdenum	ND	3.2E-04	4.9E-04	NA
nickel	ND	1.2E-04	3.3E-05	NA
selenium	ND	2.1E-05	1.5E-05	NA
silver	ND	1.1E-04	ND	NA
thallium	ND	1.3E-03	7.5E-04	NA
uranium-total	ND	6.8E-04	7.8E-03	NA
vanadium	ND	NA	NA	NA
zinc	ND	3.1E-05	7.2E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.0E-06	1.0E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	5.5E-07	2.2E-05	NA
methylene chloride	4.8E-15	NA	NA	NA
pyrene	NA	5.9E-07	2.4E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	2.0E-04	5.8E-03	4.0E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2i
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 9, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	NA	NA	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.0E-02	4.0E-02	NA
arsenic	ND	4.6E-03	2.8E-04	NA
barium	2.9E-06	1.4E-04	8.7E-05	NA
beryllium	ND	2.0E-05	1.2E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	7.9E-04	9.1E-03	NA
chromium vi	ND	4.2E-04	5.4E-04	NA
cobalt	1.4E-04	NA	NA	NA
copper	ND	6.9E-05	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	3.3E-04	NA	NA	NA
mercury	8.3E-09	NA	NA	NA
molybdenum	ND	1.4E-04	2.2E-04	NA
nickel	ND	1.5E-04	4.4E-05	NA
selenium	ND	2.3E-05	1.7E-05	NA
silver	ND	1.2E-04	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	3.7E-03	4.2E-02	NA
vanadium	ND	4.8E-04	5.5E-04	NA
zinc	ND	3.6E-05	8.3E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-05	6.5E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	8.6E-06	3.4E-04	NA
methylene chloride	1.6E-14	6.3E-08	1.1E-06	NA
pyrene	NA	1.2E-05	4.9E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	4.7E-04	2.1E-02	9.5E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-2j
HAZARD QUOTIENTS FOR GROUNDSKEEPER
AREA 10, CURRENT LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.2E-06	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.4E-03	5.4E-03	NA
arsenic	ND	1.1E-02	6.4E-04	NA
barium	2.7E-06	1.5E-04	9.5E-05	NA
beryllium	ND	4.4E-05	2.5E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	1.8E-04	2.0E-03	NA
chromium vi	ND	4.8E-04	6.2E-04	NA
cobalt	1.0E-04	NA	NA	NA
copper	ND	5.4E-05	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	3.7E-04	4.3E-03	NA
manganese	2.1E-04	7.9E-04	1.5E-02	NA
mercury	1.3E-08	2.6E-04	5.0E-03	NA
molybdenum	ND	9.8E-05	1.5E-04	NA
nickel	ND	NA	NA	NA
selenium	ND	7.9E-06	5.7E-06	NA
silver	ND	3.6E-05	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	2.7E-03	3.1E-02	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.8E-05	6.5E-05	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-06	3.7E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	6.5E-07	2.6E-05	NA
methylene chloride	1.6E-14	NA	NA	NA
pyrene	NA	6.8E-07	2.7E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	4.1E-08	1.1E-06	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	3.1E-04	1.7E-02	6.7E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-3a
ILCRs FOR VISITOR
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways: Contaminants of Concern	Inhalation	External Exposure
Radionuclides		
Cs_{137+1d}	9.5E-14	NA
Np_{237+1d}	4.8E-11	NA
Pb_{210+2d}	NA	NA
Pu_{238}	4.0E-09	2.6E-11
$Pu_{239/240}$	4.0E-10	NA
Ra_{226+5d}	2.1E-09	2.2E-05
Ra_{228+1d}	4.1E-10	NA
Ru_{106}	6.9E-13	NA
Sr_{90+1d}	6.8E-13	ND
Tc_{99}	4.9E-13	NA
Th_{228+7d}	1.1E-08	NA
Th_{230}	8.3E-08	2.8E-10
Th_{232}	9.6E-09	NA
U_{234}	2.5E-07	1.2E-09
$U_{235/236}$	1.9E-08	6.4E-07
U_{238+2d}	5.4E-07	2.1E-06
Rn_{222+4d}	8.9E-07	NA
Total Radionuclides	1.8E-06	2.5E-05
Chemicals		
arsenic	5.2E-10	NA
beryllium	3.2E-11	NA
cadmium	8.5E-11	NA
chromium vi	2.9E-09	NA
nickel	6.5E-11	NA
benzene	6.6E-19	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbazole	ND	NA
carbon tetrachloride	NA	NA
chloroform	2.5E-17	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	3.9E-17	NA
n-nitrosodiphenylamine	ND	NA
n-nitrosodipropylamine	ND	NA
pentachlorophenol	NA	NA
tetrachloroethene	1.4E-11	NA
trichloroethene	8.2E-11	NA
vinyl chloride	NA	NA
benzo(a)anthracene	1.5E-13	NA
benzo(a)pyrene	1.2E-12	NA
benzo(b)fluoranthene	1.4E-13	NA
benzo(k)fluoranthene	5.1E-14	NA
chrysene	1.0E-15	NA
dibenzo(a,h)anthracene	3.3E-13	NA
indeno(1,2,3-cd)pyrene	2.1E-13	NA
aroclor-1254	ND	NA
aroclor-1260	ND	NA
4,4-ddt	ND	NA
4,4-dde	ND	NA
chlordane	1.7E-16	NA
dieldrin	4.8E-15	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	1.6E-15	NA
octachlorodibenzofuran	8.4E-16	NA
Sum Chem (TEF for PAHs):	3.7E-09	
Sum Chem (BaP for PAHs):	3.7E-09	
TOTAL ALL (TEF Approach):	1.8E-06	2.5E-05
TOTAL ALL (BaP Approach):	1.8E-06	2.5E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-3b
ILCRs FOR VISITOR
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways: Contaminants of Concern	Inhalation	External Exposure
Radionuclides		
Cs_{137+1d}	1.1E-13	3.4E-06
Np_{237+1d}	1.0E-10	4.4E-07
Pb_{210+2d}	NA	NA
Pu_{238}	3.7E-09	2.4E-10
$Pu_{239/240}$	4.5E-10	6.4E-11
Ra_{226+5d}	3.2E-09	1.4E-05
Ra_{228+1d}	4.5E-10	2.1E-04
Ru_{106}	2.1E-12	NA
Sr_{90+1d}	8.9E-13	ND
Tc_{99}	5.7E-13	4.4E-12
Th_{228+7d}	1.1E-08	2.1E-04
Th_{230}	1.2E-07	7.9E-09
Th_{232}	8.1E-09	1.3E-09
U_{234}	2.8E-07	3.2E-08
$U_{235/236}$	2.2E-08	2.2E-05
U_{238+2d}	5.9E-07	4.0E-05
Rn_{222+4d}	1.4E-06	NA
Total Radionuclides	2.4E-06	4.9E-04
Chemicals		
arsenic	7.3E-10	NA
beryllium	4.7E-11	NA
cadmium	1.1E-10	NA
chromium vi	4.0E-09	NA
nickel	9.2E-11	NA
benzene	1.0E-18	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbazole	ND	NA
carbon tetrachloride	NA	NA
chloroform	2.5E-17	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	5.9E-17	NA
n-nitrosodiphenylamine	ND	NA
n-nitrosodipropylamine	ND	NA
pentachlorophenol	NA	NA
tetrachloroethene	1.9E-11	NA
trichloroethene	1.2E-10	NA
vinyl chloride	NA	NA
benzo(a)anthracene	2.8E-13	NA
benzo(a)pyrene	2.0E-12	NA
benzo(b)fluoranthene	2.8E-13	NA
benzo(k)fluoranthene	7.8E-14	NA
chrysene	1.9E-15	NA
dibenzo(a,h)anthracene	5.8E-13	NA
indeno(1,2,3-cd)pyrene	3.9E-13	NA
aroclor-1254	ND	NA
aroclor-1260	ND	NA
4,4-ddt	ND	NA
4,4-dde	ND	NA
chlordane	3.0E-16	NA
dieldrin	7.0E-15	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	3.4E-15	NA
octachlorodibenzofuran	1.3E-15	NA
Sum Chem (TEF for PAHs):	5.2E-09	
Sum Chem (BaP for PAHs):	5.2E-09	
TOTAL ALL (TEF Approach):	2.4E-06	4.9E-04
TOTAL ALL (BaP Approach):	2.4E-06	4.9E-04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-3c
ILCRs FOR VISITOR
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways: Contaminants of Concern	Inhalation	External Exposure
Radionuclides		
Cs_{137+1d}	1.1E-13	2.8E-06
Np_{237+1d}	6.3E-11	NA
Pb_{210+2d}	NA	NA
Pu_{238}	1.3E-09	NA
$Pu_{239/240}$	2.4E-10	5.8E-11
Ra_{226+5d}	1.9E-08	4.1E-05
Ra_{228+1d}	4.1E-10	3.4E-05
Ru_{106}	1.1E-12	NA
Sr_{90+1d}	1.1E-12	ND
Tc_{99}	7.3E-13	4.4E-12
Th_{228+7d}	8.3E-09	4.1E-05
Th_{230}	1.8E-07	1.8E-09
Th_{232}	7.1E-09	1.9E-10
U_{234}	1.5E-07	9.8E-09
$U_{235/236}$	1.2E-08	3.6E-06
U_{238+2d}	3.3E-07	1.2E-05
Rn_{222+4d}	1.1E-05	NA
Total Radionuclides	1.2E-05	1.4E-04
Chemicals		
arsenic	6.0E-10	NA
beryllium	4.4E-11	NA
cadmium	1.2E-10	NA
chromium vi	3.9E-09	NA
nickel	9.0E-11	NA
benzene	5.6E-18	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbazole	ND	NA
carbon tetrachloride	NA	NA
chloroform	7.8E-17	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	5.9E-16	NA
n-nitrosodiphenylamine	ND	NA
n-nitrosodipropylamine	ND	NA
pentachlorophenol	NA	NA
tetrachloroethene	3.2E-11	NA
trichloroethene	2.0E-10	NA
vinyl chloride	NA	NA
benzo(a)anthracene	7.6E-13	NA
benzo(a)pyrene	6.4E-12	NA
benzo(b)fluoranthene	5.6E-13	NA
benzo(k)fluoranthene	3.0E-13	NA
chrysene	3.3E-15	NA
dibenzo(a,h)anthracene	2.1E-12	NA
indeno(1,2,3-cd)pyrene	7.1E-13	NA
aroclor-1254	ND	NA
aroclor-1260	ND	NA
4,4-ddt	ND	NA
4,4-dde	ND	NA
chlordane	2.0E-16	NA
dieldrin	3.9E-15	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	6.6E-15	NA
octachlorodibenzofuran	7.3E-15	NA
Sum Chem (TEF for PAHs):	5.0E-09	
Sum Chem (BaP for PAHs):	5.0E-09	
TOTAL ALL (TEF Approach):	1.2E-05	1.4E-04
TOTAL ALL (BaP Approach):	1.2E-05	1.4E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-3d
ILCRs FOR VISITOR
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways: Contaminants of Concern	Inhalation	External Exposure
Radionuclides		
Cs_{137+1d}	7.7E-14	1.8E-06
Np_{237+1d}	5.0E-11	NA
Pb_{210+2d}	NA	NA
Pu_{238}	9.5E-10	8.8E-11
$Pu_{239/240}$	2.7E-10	2.3E-11
Ra_{226+5d}	5.7E-09	2.9E-05
Ra_{228+1d}	1.3E-10	1.3E-04
Ru_{106}	4.4E-12	NA
Sr_{90+1d}	7.2E-13	ND
Tc_{99}	4.1E-13	7.2E-12
Th_{228+7d}	5.6E-09	2.5E-04
Th_{230}	4.4E-08	2.5E-09
Th_{232}	2.4E-09	9.9E-10
U_{234}	9.8E-08	6.1E-09
$U_{235/236}$	8.6E-09	3.7E-06
U_{238+2d}	2.1E-07	2.3E-05
Rn_{222+4d}	1.2E-05	NA
Total Radionuclides	1.2E-05	4.3E-04
Chemicals		
arsenic	7.6E-10	NA
beryllium	4.3E-11	NA
cadmium	1.7E-10	NA
chromium vi	4.8E-09	NA
nickel	1.1E-10	NA
benzene	1.9E-18	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbazole	ND	NA
carbon tetrachloride	NA	NA
chloroform	2.4E-17	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethane	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
methylene chloride	5.3E-17	NA
n-nitrosodiphenylamine	ND	NA
n-nitrosodipropylamine	ND	NA
pentachlorophenol	NA	NA
tetrachloroethene	5.2E-11	NA
trichloroethene	3.1E-10	NA
vinyl chloride	NA	NA
benzo(a)anthracene	1.9E-13	NA
benzo(a)pyrene	1.5E-12	NA
benzo(b)fluoranthene	2.0E-13	NA
benzo(k)fluoranthene	7.8E-14	NA
chrysene	1.4E-15	NA
dibenzo(a,h)anthracene	4.3E-13	NA
indeno(1,2,3-cd)pyrene	2.9E-13	NA
aroclor-1254	ND	NA
aroclor-1260	ND	NA
4,4-ddt	ND	NA
4,4-dde	ND	NA
chlordane	6.6E-16	NA
dieldrin	5.9E-15	NA
heptachlorodibenzo-p-dioxin	NA	NA
heptachlorodibenzofuran	NA	NA
octachlorodibenzo-p-dioxin	1.3E-14	NA
octachlorodibenzofuran	2.5E-15	NA
Sum Chem (TEF for PAHs):	6.2E-09	
Sum Chem (BaP for PAHs):	6.2E-09	
TOTAL ALL (TEF Approach):	1.2E-05	4.3E-04
TOTAL ALL (BaP Approach):	1.2E-05	4.3E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-4a
HAZARD QUOTIENTS FOR VISITOR
AREA 1, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Toxicants	Inhalation	Exposure
cyanide	ND	NA
aluminum	ND	NA
antimony	ND	NA
arsenic	ND	NA
barium	1.2E-05	NA
beryllium	ND	NA
boron	NA	NA
cadmium	ND	NA
chromium vi	ND	NA
cobalt	3.3E-04	NA
copper	ND	NA
lead	ND	NA
magnesium	ND	NA
manganese	6.5E-04	NA
mercury	6.3E-08	NA
molybdenum	ND	NA
nickel	ND	NA
selenium	ND	NA
silver	ND	NA
thallium	ND	NA
uranium-total	ND	NA
vanadium	ND	NA
zinc	ND	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	ND	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	8.0E-14	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	ND	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	ND	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	ND	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
TOTAL:	9.9E-04	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-4b
HAZARD QUOTIENTS FOR VISITOR
AREA 2, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Toxicants	Inhalation	Exposure
cyanide	ND	NA
aluminum	ND	NA
antimony	ND	NA
arsenic	ND	NA
barium	1.9E-05	NA
beryllium	ND	NA
boron	NA	NA
cadmium	ND	NA
chromium vi	ND	NA
cobalt	4.6E-04	NA
copper	ND	NA
lead	ND	NA
magnesium	ND	NA
manganese	9.2E-04	NA
mercury	1.1E-07	NA
molybdenum	ND	NA
nickel	ND	NA
selenium	ND	NA
silver	ND	NA
thallium	ND	NA
uranium-total	ND	NA
vanadium	ND	NA
zinc	ND	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	ND	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	1.2E-13	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	ND	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	ND	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	ND	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
TOTAL:	1.4E-03	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-4c
HAZARD QUOTIENTS FOR VISITOR
AREA 3, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Toxicants	Inhalation	Exposure
cyanide	ND	NA
aluminum	ND	NA
antimony	ND	NA
arsenic	ND	NA
barium	1.3E-05	NA
beryllium	ND	NA
boron	NA	NA
cadmium	ND	NA
chromium vi	ND	NA
cobalt	4.1E-04	NA
copper	ND	NA
lead	ND	NA
magnesium	ND	NA
manganese	8.2E-04	NA
mercury	6.8E-08	NA
molybdenum	ND	NA
nickel	ND	NA
selenium	ND	NA
silver	ND	NA
thallium	ND	NA
uranium-total	ND	NA
vanadium	ND	NA
zinc	ND	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	ND	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	1.2E-12	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	ND	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	ND	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	ND	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
TOTAL:	1.2E-03	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-4d
HAZARD QUOTIENTS FOR VISITOR
AREA 4, CURRENT LAND USE

Transfer Media:	Air	Soil
Exposure Pathways:		External
Toxicants	Inhalation	Exposure
cyanide	ND	NA
aluminum	ND	NA
antimony	ND	NA
arsenic	ND	NA
barium	1.6E-05	NA
beryllium	ND	NA
boron	NA	NA
cadmium	ND	NA
chromium vi	ND	NA
cobalt	5.2E-04	NA
copper	ND	NA
lead	ND	NA
magnesium	ND	NA
manganese	8.9E-04	NA
mercury	8.0E-08	NA
molybdenum	ND	NA
nickel	ND	NA
selenium	ND	NA
silver	ND	NA
thallium	ND	NA
uranium-total	ND	NA
vanadium	ND	NA
zinc	ND	NA
acetone	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA
bromodichloromethane	NA	NA
carbon tetrachloride	NA	NA
carbon disulfide	NA	NA
bromomethane	NA	NA
chloroform	ND	NA
1,1-dichloroethane	NA	NA
1,1-dichloroethene	NA	NA
1,2-dichloroethene	NA	NA
bis(2-chloroisopropyl)ether	NA	NA
4-methylphenol	NA	NA
fluoranthene	NA	NA
methylene chloride	1.1E-13	NA
pyrene	NA	NA
2-nitroanaline	NA	NA
4-nitroanaline	NA	NA
pentachlorophenol	NA	NA
phenanthrene	NA	NA
tributyl phosphate	NA	NA
tetrachloroethene	ND	NA
toluene	NA	NA
1,1,1-trichloroethane	NA	NA
4,4-ddt	ND	NA
di-n-octylphthalate	NA	NA
delta bhc	NA	NA
dieldrin	ND	NA
chlordane	NA	NA
gamma chlordane	NA	NA
ammonia	NA	NA
nitrate	NA	NA
fluoride	NA	NA
chloride	NA	NA
TOTAL:	1.4E-03	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.

ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5a
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 5, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	3.9E-15	4.6E-10	NA	6.0E-07	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	4.4E-11	3.4E-09	NA	7.8E-12	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.8E-11	7.9E-09	NA	1.7E-11	NA	NA	NA	NA	NA
Ra_{226+3d}	2.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	7.0E-12	6.9E-09	NA	3.6E-06	NA	NA	NA	NA	NA
Ru_{106}	7.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.5E-14	2.1E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.4E-14	4.2E-10	NA	3.5E-12	NA	NA	NA	NA	NA
Th_{228+7d}	3.4E-10	2.5E-09	NA	4.5E-06	NA	NA	NA	NA	NA
Th_{230}	1.5E-09	2.1E-09	NA	1.6E-10	NA	NA	NA	NA	NA
Th_{232}	1.2E-10	7.4E-10	NA	2.9E-11	NA	NA	NA	NA	NA
U_{234}	4.0E-09	6.8E-08	NA	2.3E-09	NA	NA	NA	NA	NA
$U_{235/236}$	3.3E-10	3.6E-09	NA	9.8E-07	NA	NA	NA	NA	NA
U_{238+2d}	8.8E-09	1.2E-07	NA	2.7E-06	NA	NA	NA	NA	NA
Rn_{222+4d}	2.6E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.7E-07	2.1E-07		1.2E-05	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	4.5E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.0E-12	2.9E-08	2.9E-08	NA	NA	NA	NA	NA	NA
cadmium	1.2E-11	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	3.0E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	7.3E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	6.6E-19	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.6E-11	8.5E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.4E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.8E-18	1.8E-11	1.2E-09	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E-11	9.5E-11	9.4E-09	NA	NA	NA	NA	NA	NA
trichloroethene	6.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.0E-14	3.2E-09	3.2E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.8E-13	1.3E-07	1.3E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.4E-14	7.5E-08	7.5E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E-14	8.6E-10	8.6E-10	NA	NA	NA	NA	NA	NA
chrysene	2.9E-16	3.7E-10	3.7E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.4E-14	4.9E-09	4.9E-09	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.4E-14	3.9E-09	3.9E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	3.7E-09	6.6E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	1.1E-07	1.9E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	8.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.4E-10	3.6E-07	2.2E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	4.4E-10	1.0E-06	2.9E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	2.7E-07	5.7E-07	2.2E-06	1.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.7E-07	1.2E-06	2.9E-06	1.2E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5b
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 6, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	3.0E-15	1.9E-10	NA	2.4E-07	NA	NA	NA	NA	NA
Np_{237+1d}	1.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	4.8E-11	3.9E-09	NA	9.0E-12	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.7E-12	4.1E-09	NA	8.7E-12	NA	NA	NA	NA	NA
Ra_{226+5d}	1.2E-10	2.6E-08	NA	2.4E-05	NA	NA	NA	NA	NA
Ra_{228+1d}	2.0E-11	1.1E-08	NA	5.9E-06	NA	NA	NA	NA	NA
Ru_{106}	2.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.4E-14	1.3E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	1.1E-13	3.5E-09	NA	2.9E-11	NA	NA	NA	NA	NA
Th_{228+7d}	3.7E-10	3.4E-09	NA	6.3E-06	NA	NA	NA	NA	NA
Th_{230}	1.1E-08	1.7E-08	NA	1.2E-09	NA	NA	NA	NA	NA
Th_{232}	3.7E-10	1.4E-09	NA	5.6E-11	NA	NA	NA	NA	NA
U_{234}	8.1E-09	3.1E-07	NA	1.0E-08	NA	NA	NA	NA	NA
$U_{235/236}$	5.1E-10	7.8E-09	NA	2.1E-06	NA	NA	NA	NA	NA
U_{238+2d}	1.4E-08	2.1E-07	NA	4.8E-06	NA	NA	NA	NA	NA
Rn_{222+4d}	1.1E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.4E-07	5.9E-07		4.3E-05	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	4.5E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.9E-12	6.0E-08	6.0E-08	NA	NA	NA	NA	NA	NA
cadmium	8.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.6E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	5.9E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	6.6E-20	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.9E-18	1.1E-12	7.0E-11	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.1E-14	7.0E-10	7.0E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	8.1E-14	7.4E-08	7.4E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.1E-14	1.7E-08	1.7E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.9E-15	5.3E-09	5.3E-09	NA	NA	NA	NA	NA	NA
chrysene	6.9E-17	4.6E-11	4.6E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.6E-14	3.2E-08	3.2E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.5E-14	3.2E-08	3.2E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.0E-08	1.8E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.9E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.3E-10	2.3E-07	4.0E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	3.3E-10	5.5E-07	7.2E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.4E-07	8.3E-07	4.0E-07	4.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.4E-07	1.1E-06	7.2E-07	4.3E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5c
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 7, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	2.8E-15	2.5E-10	NA	3.2E-07	NA	NA	NA	NA	NA
Np_{237+1d}	1.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	3.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	6.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	4.2E-10	1.7E-09	NA	1.5E-06	NA	NA	NA	NA	NA
Ra_{228+1d}	1.6E-11	1.7E-09	NA	9.1E-07	NA	NA	NA	NA	NA
Ru_{106}	2.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.1E-14	6.1E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.6E-14	2.0E-11	NA	1.7E-13	NA	NA	NA	NA	NA
Th_{228+7d}	2.6E-10	1.0E-09	NA	1.9E-06	NA	NA	NA	NA	NA
Th_{230}	8.4E-09	3.9E-10	NA	2.9E-11	NA	NA	NA	NA	NA
Th_{232}	2.3E-10	2.3E-10	NA	8.9E-12	NA	NA	NA	NA	NA
U_{234}	4.0E-09	2.4E-09	NA	7.9E-11	NA	NA	NA	NA	NA
$U_{235/236}$	2.8E-10	1.8E-10	NA	4.8E-08	NA	NA	NA	NA	NA
U_{238+2d}	8.0E-09	4.4E-09	NA	1.0E-07	NA	NA	NA	NA	NA
Rn_{222+4d}	1.8E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.0E-07	1.3E-08		4.8E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	3.7E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.5E-12	4.5E-08	4.5E-08	NA	NA	NA	NA	NA	NA
cadmium	7.2E-12	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	2.2E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	5.1E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	1.8E-19	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.8E-12	6.7E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E-17	8.9E-13	5.9E-11	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.8E-12	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.7E-11	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E-14	5.7E-11	5.7E-11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E-13	4.0E-09	4.0E-09	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.7E-14	4.9E-10	4.9E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.8E-15	2.3E-10	2.3E-10	NA	NA	NA	NA	NA	NA
chrysene	1.1E-16	4.6E-12	4.6E-12	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.1E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.9E-10	5.0E-08	5.0E-08		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	2.9E-10	5.9E-08	5.9E-08		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	2.0E-07	6.3E-08	5.0E-08	4.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.0E-07	7.2E-08	5.9E-08	4.8E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5d
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 8, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	9.1E-16	2.6E-10	NA	3.3E-07	NA	NA	NA	NA	NA
Np_{237+1d}	3.6E-13	2.1E-09	NA	7.4E-08	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	2.8E-11	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	1.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	2.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.8E-15	6.0E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	5.2E-15	2.5E-11	NA	2.1E-13	NA	NA	NA	NA	NA
Th_{228+7d}	7.6E-11	1.0E-09	NA	1.9E-06	NA	NA	NA	NA	NA
Th_{230}	2.9E-10	2.7E-10	NA	2.0E-11	NA	NA	NA	NA	NA
Th_{232}	3.2E-11	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	7.5E-10	7.6E-10	NA	2.6E-11	NA	NA	NA	NA	NA
$U_{235/236}$	6.7E-11	1.3E-10	NA	3.6E-08	NA	NA	NA	NA	NA
U_{238+2d}	1.9E-09	1.7E-09	NA	3.9E-08	NA	NA	NA	NA	NA
Rn_{222+4d}	4.9E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	5.2E-08	6.9E-09		2.3E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	2.0E-11	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.2E-12	7.4E-08	7.4E-08	NA	NA	NA	NA	NA	NA
cadmium	4.9E-12	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	3.0E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	5.1E-20	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.9E-11	8.8E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.4E-19	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.5E-19	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E-11	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.8E-11	4.7E-13	3.2E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E-15	5.7E-11	5.7E-11	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.1E-15	5.4E-10	5.4E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E-15	2.5E-10	2.5E-10	NA	NA	NA	NA	NA	NA
chrysene	2.9E-17	6.1E-12	6.1E-12	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.9E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E-10	7.5E-08	7.5E-08		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	2.4E-10	8.5E-08	8.5E-08		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	5.3E-08	8.2E-08	7.5E-08	2.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	5.3E-08	9.2E-08	8.5E-08	2.3E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5c
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 9, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	1.5E-15	3.7E-10	NA	4.7E-07	NA	NA	NA	NA	NA
Np_{237+1d}	7.8E-13	2.8E-09	NA	9.9E-08	3.6E-09	NA	NA	NA	NA
Pb_{210+2d}	NA	2.9E-07	NA	1.3E-09	NA	NA	NA	NA	NA
Pu_{238}	1.6E-11	7.8E-10	NA	1.8E-12	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.5E-12	8.2E-10	NA	1.7E-12	4.1E-09	NA	NA	NA	NA
Ra_{226+5d}	5.8E-11	4.9E-08	NA	4.4E-05	NA	NA	3.2E-10	NA	2.9E-07
Ra_{228+1d}	2.1E-12	1.7E-09	NA	9.0E-07	NA	NA	3.5E-10	NA	1.9E-07
Ru_{106}	7.5E-14	3.5E-10	NA	ND	NA	NA	NA	NA	NA
Sr_{90+1d}	8.6E-15	6.4E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	6.9E-15	1.8E-11	NA	1.5E-13	NA	NA	NA	NA	NA
Th_{228+7d}	1.1E-10	5.4E-09	NA	9.9E-06	NA	NA	NA	NA	NA
Th_{230}	7.2E-10	5.5E-09	NA	4.1E-10	7.1E-10	NA	NA	NA	NA
Th_{232}	5.3E-11	3.6E-10	NA	1.4E-11	NA	NA	NA	NA	NA
U_{234}	9.7E-10	6.2E-09	NA	2.1E-10	4.1E-07	NA	NA	NA	NA
$U_{235/236}$	9.3E-11	2.7E-10	NA	7.2E-08	1.5E-08	NA	NA	NA	NA
U_{238+2d}	2.6E-09	2.4E-08	NA	5.5E-07	7.4E-07	NA	NA	NA	NA
Rn_{222+4d}	5.3E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	5.7E-08	3.9E-07		5.7E-05	1.2E-06		6.7E-10		4.8E-07
Chemicals									
arsenic	7.4E-11	1.9E-07	4.4E-08	NA	1.2E-07	1.8E-08	NA	NA	NA
beryllium	2.1E-12	3.4E-08	3.4E-08	NA	NA	NA	NA	NA	NA
cadmium	9.7E-12	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	2.1E-10	ND	ND	NA	ND	ND	NA	NA	NA
nickel	5.7E-12	ND	ND	NA	ND	ND	NA	NA	NA
benzene	3.1E-20	9.4E-13	1.2E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.6E-10	5.5E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.3E-19	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-18	2.3E-12	1.5E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.8E-12	NA	NA	NA	2.5E-07	5.1E-06	NA	NA	NA
trichloroethene	4.2E-11	7.1E-13	4.8E-11	NA	3.9E-09	1.9E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.0E-15	1.5E-09	1.5E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.2E-14	7.7E-08	7.7E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.0E-15	2.3E-08	2.3E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E-15	2.5E-10	2.5E-10	NA	NA	NA	NA	NA	NA
chrysene	2.8E-17	8.7E-11	8.7E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.8E-15	8.6E-10	8.6E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.2E-09	2.1E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.3E-16	1.5E-09	1.9E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.5E-10	3.3E-07	2.2E-07		3.7E-07	5.1E-06	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	3.5E-10	5.3E-07	4.2E-07		3.7E-07	5.1E-06	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	5.8E-08	7.2E-07	2.2E-07	5.7E-05	1.5E-06	5.1E-06	6.7E-10	0.0E+00	4.8E-07
TOTAL ALL (BaP Approach):	5.8E-08	9.2E-07	4.2E-07	5.7E-05	1.5E-06	5.1E-06	6.7E-10	0.0E+00	4.8E-07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5f
ILCRs FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 10, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	1.4E-15	1.8E-10	NA	2.3E-07	NA	NA	NA	NA	NA
Np_{237+1d}	7.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	5.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.8E-12	1.1E-09	NA	2.3E-12	NA	NA	NA	NA	NA
Ra_{226+5d}	5.5E-11	2.0E-09	NA	1.8E-06	4.5E-09	NA	4.4E-10	NA	4.0E-07
Ra_{228+1d}	7.1E-12	1.4E-09	NA	7.4E-07	7.0E-09	NA	3.1E-10	NA	1.7E-07
Ru_{106}	2.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.2E-14	5.8E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	1.5E-14	2.0E-11	NA	1.7E-13	NA	NA	NA	NA	NA
Th_{228+7d}	1.7E-10	7.8E-10	NA	1.4E-06	NA	NA	1.5E-10	NA	2.8E-07
Th_{230}	2.3E-09	3.5E-10	NA	2.7E-11	1.2E-10	NA	1.3E-10	NA	1.0E-11
Th_{232}	1.3E-10	1.2E-10	NA	4.8E-12	1.0E-10	NA	3.7E-11	NA	1.5E-12
U_{234}	3.6E-09	1.1E-09	NA	3.6E-11	3.8E-09	NA	2.2E-10	NA	7.7E-12
$U_{235/236}$	2.6E-10	1.5E-10	NA	4.1E-08	5.9E-10	NA	5.6E-11	NA	1.5E-08
U_{238+2d}	7.4E-09	4.7E-09	NA	1.1E-07	8.6E-09	NA	3.4E-10	NA	7.9E-09
Rn_{222+4d}	3.2E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.6E-08	1.2E-08		4.3E-06	2.5E-08		1.7E-09		8.7E-07
Chemicals									
arsenic	3.1E-11	4.4E-07	1.0E-07	NA	1.9E-07	2.9E-08	3.4E-08	2.4E-08	NA
beryllium	1.9E-12	7.4E-08	7.4E-08	NA	NA	NA	5.3E-08	5.3E-08	NA
cadmium	5.3E-12	ND	ND	NA	ND	ND	ND	ND	NA
chromium vi	1.7E-10	ND	ND	NA	NA	NA	ND	ND	NA
nickel	3.6E-12	NA	NA	NA	ND	ND	ND	ND	NA
benzene	2.7E-20	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.2E-11	3.1E-11	NA	1.6E-08	1.1E-06	2.7E-12	8.0E-12	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.5E-12	1.1E-10	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.1E-19	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-18	NA	NA	NA	NA	NA	1.9E-13	3.8E-11	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.2E-13	1.7E-12	1.7E-10	NA	NA	NA	NA	NA	NA
trichloroethene	5.5E-12	2.4E-13	1.6E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.9E-15	8.0E-11	8.0E-11	NA	NA	NA	5.5E-11	5.5E-11	NA
benzo(a)pyrene	3.7E-14	4.8E-09	4.8E-09	NA	NA	NA	3.4E-09	3.4E-09	NA
benzo(b)fluoranthene	4.7E-15	6.4E-10	6.4E-10	NA	NA	NA	7.7E-10	7.7E-10	NA
benzo(k)fluoranthene	1.6E-15	3.2E-10	3.2E-10	NA	NA	NA	4.0E-10	4.0E-10	NA
chrysene	3.4E-17	6.9E-12	6.9E-12	NA	NA	NA	3.9E-12	3.9E-12	NA
dibenzo(a,h)anthracene	1.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.8E-15	1.1E-09	1.1E-09	NA	NA	NA	7.1E-10	7.1E-10	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.1E-18	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.5E-17	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.1E-10	5.2E-07	1.8E-07		2.0E-07	1.1E-06	9.3E-08	8.3E-08	
Sum Chem (BaP for PAHs):	2.1E-10	5.4E-07	2.0E-07		2.0E-07	1.1E-06	1.1E-07	9.9E-08	
TOTAL ALL (TEF Approach):	4.6E-08	5.3E-07	1.8E-07	4.3E-06	2.3E-07	1.1E-06	9.5E-08	8.3E-08	8.7E-07
TOTAL ALL (BaP Approach):	4.6E-08	5.5E-07	2.0E-07	4.3E-06	2.3E-07	1.1E-06	1.1E-07	9.9E-08	8.7E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5g
ILCRs FOR EXPLORING YOUTH
AREA 1, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	6.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.7E-10	1.7E-09	NA	3.9E-12	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.7E-11	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.4E-10	3.7E-09	NA	3.3E-06	NA	NA	NA	NA	NA
Ra_{228+1d}	2.7E-11	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	4.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.5E-14	7.3E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.3E-14	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	7.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	5.5E-09	5.7E-10	NA	4.2E-11	NA	NA	NA	NA	NA
Th_{232}	6.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.7E-08	5.3E-09	NA	1.8E-10	NA	NA	NA	NA	NA
$U_{235/236}$	1.2E-09	3.6E-10	NA	9.6E-08	NA	NA	NA	NA	NA
U_{238+2d}	3.6E-08	1.4E-08	NA	3.2E-07	NA	NA	NA	NA	NA
Rn_{222+4d}	5.9E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.2E-07	2.6E-08		3.7E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	5.7E-11	2.2E-07	5.1E-08	NA	NA	NA	NA	NA	NA
beryllium	3.5E-12	4.5E-08	4.5E-08	NA	NA	NA	NA	NA	NA
cadmium	9.1E-12	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	3.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	7.0E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	7.2E-20	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-11	1.8E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	5.4E-11	4.0E-09	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	3.9E-11	2.9E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E-18	1.1E-12	7.0E-11	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E-12	5.6E-13	5.5E-11	NA	NA	NA	NA	NA	NA
trichloroethene	8.8E-12	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E-14	2.1E-09	2.1E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.3E-13	1.3E-07	1.3E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.6E-14	1.9E-08	1.9E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.5E-15	6.2E-09	6.2E-09	NA	NA	NA	NA	NA	NA
chrysene	1.1E-16	1.7E-10	1.7E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.6E-14	3.2E-08	3.2E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.2E-14	2.8E-08	2.8E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.7E-08	2.9E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.0E-10	4.9E-07	6.1E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	4.0E-10	8.7E-07	9.8E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.2E-07	5.2E-07	6.1E-07	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.2E-07	8.9E-07	9.8E-07	3.7E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5h
ILCRs FOR EXPLORING YOUTH
AREA 2, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+3d}	7.5E-15	4.0E-10	NA	5.1E-07	NA	NA	NA	NA	NA
Np_{237+1d}	6.6E-12	1.9E-09	NA	6.5E-08	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.4E-10	1.6E-08	NA	3.6E-11	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.0E-11	4.5E-09	NA	9.5E-12	NA	NA	NA	NA	NA
Ra_{226+5d}	2.1E-10	2.4E-09	NA	2.2E-06	NA	NA	NA	NA	NA
Ra_{228+1d}	3.0E-11	5.9E-08	NA	3.1E-05	NA	NA	NA	NA	NA
Ru_{106}	1.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.9E-14	4.3E-10	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.8E-14	7.9E-11	NA	6.5E-13	NA	NA	NA	NA	NA
Th_{228+7d}	7.6E-10	1.7E-08	NA	3.1E-05	NA	NA	NA	NA	NA
Th_{230}	7.8E-09	1.6E-08	NA	1.2E-09	NA	NA	NA	NA	NA
Th_{232}	5.3E-10	5.1E-09	NA	2.0E-10	NA	NA	NA	NA	NA
U_{234}	1.8E-08	1.4E-07	NA	4.7E-09	NA	NA	NA	NA	NA
$U_{235/236}$	1.5E-09	1.2E-08	NA	3.3E-06	NA	NA	NA	NA	NA
U_{238+2d}	3.9E-08	2.6E-07	NA	6.0E-06	NA	NA	NA	NA	NA
Rn_{222+4d}	9.1E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.6E-07	5.3E-07		7.4E-05	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	7.9E-11	2.3E-07	5.4E-08	NA	NA	NA	NA	NA	NA
beryllium	5.1E-12	6.9E-08	6.9E-08	NA	NA	NA	NA	NA	NA
cadmium	1.2E-11	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	4.4E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.0E-11	ND	ND	NA	NA	NA	NA	NA	NA
benzene	1.1E-19	1.6E-12	1.9E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.9E-11	3.9E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.6E-11	3.4E-09	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.6E-11	1.9E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.3E-18	1.6E-12	1.1E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.0E-12	6.7E-12	6.6E-10	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E-11	4.0E-12	2.7E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.0E-14	1.9E-09	1.9E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.2E-13	8.7E-08	8.7E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.0E-14	1.5E-08	1.5E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	8.4E-15	4.9E-09	4.9E-09	NA	NA	NA	NA	NA	NA
chrysene	2.1E-16	1.3E-10	1.3E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.2E-14	3.1E-08	3.1E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.2E-14	2.2E-08	2.2E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	3.3E-07	5.9E-06	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	7.5E-08	1.3E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.4E-16	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.6E-10	8.7E-07	7.5E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	5.6E-10	1.2E-06	7.8E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.6E-07	1.4E-06	7.5E-06	7.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.6E-07	1.7E-06	7.8E-06	7.4E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5i
ILCRs FOR EXPLORING YOUTH
AREA 3, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+16}	7.1E-15	3.3E-10	NA	4.2E-07	NA	NA	NA	NA	NA
Np_{237+14}	4.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+24}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	8.9E-11	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.6E-11	4.1E-09	NA	8.7E-12	NA	NA	NA	NA	NA
Ra_{226+54}	1.2E-09	6.8E-09	NA	6.2E-06	NA	NA	NA	NA	NA
Ra_{228+14}	2.7E-11	9.8E-09	NA	5.1E-06	NA	NA	NA	NA	NA
Ru_{106}	7.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+14}	7.3E-14	1.5E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	4.8E-14	7.8E-11	NA	6.5E-13	NA	NA	NA	NA	NA
Th_{228+74}	5.5E-10	3.4E-09	NA	6.2E-06	NA	NA	NA	NA	NA
Th_{230}	1.2E-08	3.5E-09	NA	2.6E-10	NA	NA	NA	NA	NA
Th_{232}	4.7E-10	7.3E-10	NA	2.8E-11	NA	NA	NA	NA	NA
U_{234}	9.7E-09	4.3E-08	NA	1.5E-09	NA	NA	NA	NA	NA
$U_{235/236}$	7.8E-10	2.0E-09	NA	5.3E-07	NA	NA	NA	NA	NA
U_{238+24}	2.2E-08	8.0E-08	NA	1.9E-06	NA	NA	NA	NA	NA
Rn_{222+44}	7.5E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.0E-07	1.6E-07		2.0E-05	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	6.5E-11	3.5E-07	8.0E-08	NA	NA	NA	NA	NA	NA
beryllium	4.8E-12	4.7E-08	4.7E-08	NA	NA	NA	NA	NA	NA
cadmium	1.3E-11	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	4.2E-10	ND	ND	NA	NA	NA	NA	NA	NA
nickel	9.7E-12	ND	ND	NA	NA	NA	NA	NA	NA
benzene	6.1E-19	6.3E-13	7.7E-14	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.6E-10	5.5E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.4E-11	1.0E-09	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.4E-18	1.8E-11	1.2E-09	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.6E-10	1.9E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	2.0E-12	1.4E-10	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.3E-17	4.0E-12	2.7E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	3.6E-11	2.6E-09	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.5E-12	2.7E-10	2.6E-08	NA	NA	NA	NA	NA	NA
trichloroethene	2.1E-11	1.1E-11	7.2E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	8.2E-14	1.1E-08	1.1E-08	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.9E-13	8.7E-07	8.7E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.1E-14	4.4E-08	4.4E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.3E-14	1.6E-08	1.6E-08	NA	NA	NA	NA	NA	NA
chrysene	3.6E-16	2.8E-10	2.8E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.3E-13	2.7E-07	2.7E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	7.7E-14	1.7E-07	1.7E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.3E-07	2.3E-06	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	2.3E-07	4.1E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	5.2E-09	6.9E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.1E-16	1.8E-09	2.4E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.9E-16	2.1E-09	2.8E-08	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.4E-10	2.2E-06	8.1E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	5.4E-10	3.3E-06	9.3E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	8.0E-07	2.3E-06	8.1E-06	2.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	8.0E-07	3.5E-06	9.3E-06	2.0E-05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5j
ILCRs FOR EXPLORING YOUTH
AREA 4, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	5.1E-15	2.1E-10	NA	2.7E-07	NA	NA	NA	NA	NA
Np_{237+1d}	3.3E-12	NA	NA	NA	NA	NA	8.6E-11	NA	3.1E-09
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	6.3E-11	5.7E-09	NA	1.3E-11	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.8E-11	1.6E-09	NA	3.5E-12	NA	NA	NA	NA	NA
Ra_{226+5d}	3.8E-10	4.8E-09	NA	4.4E-06	NA	NA	4.7E-10	NA	4.3E-07
Ra_{228+1d}	8.6E-12	3.6E-08	NA	1.9E-05	NA	NA	4.3E-10	NA	2.3E-07
Ru_{106}	2.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.8E-14	9.5E-10	NA	ND	NA	NA	1.4E-10	NA	ND
Tc_{99}	2.8E-14	1.3E-10	NA	1.1E-12	2.4E-09	NA	NA	NA	NA
Th_{228+7d}	3.7E-10	2.0E-08	NA	3.7E-05	NA	NA	1.6E-10	NA	2.9E-07
Th_{230}	2.9E-09	4.9E-09	NA	3.7E-10	NA	NA	5.3E-11	NA	4.0E-12
Th_{232}	1.6E-10	3.8E-09	NA	1.5E-10	NA	NA	2.7E-11	NA	1.1E-12
U_{234}	6.5E-09	2.7E-08	NA	9.2E-10	2.5E-08	NA	2.3E-10	NA	7.8E-12
$U_{235/236}$	5.7E-10	2.0E-09	NA	5.5E-07	2.2E-09	NA	1.6E-11	NA	4.3E-09
U_{238+2d}	1.4E-08	1.5E-07	NA	3.5E-06	2.2E-07	NA	5.0E-10	NA	1.2E-08
Rn_{222+4d}	7.9E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.1E-07	2.6E-07		6.5E-05	2.5E-07		2.1E-09		9.6E-07
Chemicals									
arsenic	8.2E-11	1.4E-07	3.3E-08	NA	NA	NA	6.5E-08	4.6E-08	NA
beryllium	4.6E-12	3.8E-08	3.8E-08	NA	1.3E-07	1.3E-07	1.3E-08	1.3E-08	NA
cadmium	1.8E-11	ND	ND	NA	ND	ND	NA	NA	NA
chromium vi	5.1E-10	ND	ND	NA	ND	ND	ND	ND	NA
nickel	1.2E-11	ND	ND	NA	ND	ND	ND	ND	NA
benzene	2.1E-19	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.5E-11	1.4E-11	NA	NA	NA	7.0E-12	2.1E-11	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	8.5E-12	1.9E-09	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.6E-18	2.6E-13	1.7E-11	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.7E-18	1.1E-12	7.5E-11	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	6.9E-11	5.1E-09	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.7E-12	3.6E-12	3.6E-10	NA	NA	NA	NA	NA	NA
trichloroethene	3.4E-11	3.6E-13	2.4E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E-14	6.3E-11	6.3E-11	NA	NA	NA	2.0E-10	2.0E-10	NA
benzo(a)pyrene	1.6E-13	5.3E-09	5.3E-09	NA	NA	NA	1.4E-08	1.4E-08	NA
benzo(b)fluoranthene	2.1E-14	7.6E-10	7.6E-10	NA	NA	NA	2.3E-09	2.3E-09	NA
benzo(k)fluoranthene	8.4E-15	2.3E-10	2.3E-10	NA	NA	NA	3.6E-10	3.6E-10	NA
chrysene	1.5E-16	7.5E-12	7.5E-12	NA	NA	NA	1.3E-11	1.3E-11	NA
dibenzo(a,h)anthracene	4.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.2E-14	NA	NA	NA	NA	NA	2.2E-09	2.2E-09	NA
aroclor-1254	ND	3.7E-08	6.6E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.1E-17	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	6.7E-10	2.3E-07	7.4E-07		1.3E-07	1.3E-07	9.7E-08	8.0E-08	
Sum Chem (BaP for PAHs):	6.7E-10	2.4E-07	7.6E-07		1.3E-07	1.3E-07	1.3E-07	1.1E-07	
TOTAL ALL (TEF Approach):	8.1E-07	4.8E-07	7.4E-07	6.5E-05	3.8E-07	1.3E-07	9.9E-08	8.0E-08	9.6E-07
TOTAL ALL (BaP Approach):	8.1E-07	5.0E-07	7.6E-07	6.5E-05	3.8E-07	1.3E-07	1.3E-07	1.1E-07	9.6E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-5k
ILCRs FOR EXPLORING YOUTH
PADDYS RUN OFF-PROPERTY, CURRENT LAND USE

Transfer Media:	Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides					
Cs_{137+1d}	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA
Ra_{226+5d}	5.2E-09	NA	5.1E-10	NA	4.7E-07
Ra_{228+1d}	8.1E-09	NA	2.3E-10	NA	1.2E-07
Ru_{106}	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA
Th_{228+7d}	3.8E-09	NA	8.6E-11	NA	1.6E-07
Th_{230}	5.6E-10	NA	4.1E-11	NA	3.1E-12
Th_{232}	NA	NA	1.9E-11	NA	7.4E-13
U_{234}	2.5E-09	NA	5.0E-11	NA	1.7E-12
$U_{235/236}$	NA	NA	NA	NA	NA
U_{238+2d}	2.4E-09	NA	7.6E-11	NA	1.8E-09
Rn_{222+4d}	NA	NA	NA	NA	NA
Total Radionuclides	2.3E-08		1.0E-09		7.6E-07
Chemicals					
arsenic	8.3E-08	1.3E-08	3.0E-08	2.1E-08	NA
beryllium	NA	NA	2.7E-08	2.7E-08	NA
cadmium	NA	NA	NA	NA	NA
chromium vi	NA	NA	ND	ND	NA
nickel	NA	NA	ND	ND	NA
benzene	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.1E-09	4.2E-07	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA
methylene chloride	NA	NA	1.6E-13	3.2E-11	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA
trichloroethene	4.4E-10	2.1E-09	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	9.0E-08	4.3E-07	5.7E-08	4.9E-08	
Sum Chem (BaP for PAHs):	9.0E-08	4.3E-07	5.7E-08	4.9E-08	
TOTAL ALL (TEF Approach):	1.1E-07	4.3E-07	5.8E-08	4.9E-08	7.6E-07
TOTAL ALL (BaP Approach):	1.1E-07	4.3E-07	5.8E-08	4.9E-08	7.6E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6a
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 5, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	3.8E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	4.9E-04	7.2E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.9E-06	7.4E-05	1.8E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	7.9E-06	1.8E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.8E-04	2.1E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.2E-04	1.1E-03	NA	NA	NA	NA	NA	NA
cobalt	7.7E-05	1.6E-05	8.1E-05	NA	NA	NA	NA	NA	NA
copper	ND	9.0E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	NA	NA	NA	NA	NA	NA	NA	NA
manganese	1.3E-04	6.7E-04	4.9E-02	NA	NA	NA	NA	NA	NA
mercury	7.1E-09	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.8E-05	3.4E-04	NA	NA	NA	NA	NA	NA
nickel	ND	8.1E-05	8.9E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.0E-05	2.8E-05	NA	NA	NA	NA	NA	NA
silver	ND	9.3E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.1E-02	4.8E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	4.5E-04	4.0E-03	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-06	1.8E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	6.0E-06	9.2E-04	NA	NA	NA	NA	NA	NA
methylene chloride	1.2E-14	2.3E-07	1.5E-05	NA	NA	NA	NA	NA	NA
pyrene	NA	1.4E-05	2.2E-03	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.1E-06	1.1E-04	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.1E-04	1.4E-02	5.7E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6b
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 6, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.8E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.4E-03	5.0E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.5E-06	1.6E-04	3.8E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.6E-05	3.6E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.7E-04	1.8E-03	NA	NA	NA	NA	NA	NA
cobalt	5.9E-05	1.7E-05	8.1E-05	NA	NA	NA	NA	NA	NA
copper	ND	4.0E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.4E-04	6.1E-03	NA	NA	NA	NA	NA	NA
manganese	1.3E-04	9.0E-04	6.7E-02	NA	NA	NA	NA	NA	NA
mercury	8.6E-09	2.5E-05	1.9E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.1E-04	6.2E-04	NA	NA	NA	NA	NA	NA
nickel	ND	9.0E-05	9.9E-05	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.3E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	4.2E-04	9.3E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	3.6E-02	1.6E+00	NA	NA	NA	NA	NA	NA
vanadium	ND	4.3E-04	1.9E-03	NA	NA	NA	NA	NA	NA
zinc	ND	9.1E-05	8.0E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	3.3E-07	5.1E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.7E-14	1.3E-08	8.9E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	6.1E-07	9.4E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.9E-04	4.2E-02	1.7E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6c
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 7, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.3E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	5.8E-04	8.6E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.4E-06	1.2E-04	3.0E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.2E-05	2.7E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.2E-04	5.3E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.8E-04	8.7E-04	NA	NA	NA	NA	NA	NA
cobalt	4.8E-05	1.5E-05	7.2E-05	NA	NA	NA	NA	NA	NA
copper	ND	2.6E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	3.8E-04	1.7E-02	NA	NA	NA	NA	NA	NA
manganese	1.0E-04	8.3E-04	6.1E-02	NA	NA	NA	NA	NA	NA
mercury	6.5E-09	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.6E-04	9.1E-04	NA	NA	NA	NA	NA	NA
nickel	ND	6.0E-05	6.6E-05	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	6.0E-06	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.1E-03	4.9E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	2.7E-04	1.2E-03	NA	NA	NA	NA	NA	NA
zinc	ND	1.2E-05	1.0E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-07	1.4E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.6E-07	2.4E-05	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E-14	1.1E-08	7.5E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	2.0E-07	3.0E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.5E-04	3.9E-03	1.5E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6d
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 8, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.7E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	5.0E-04	7.4E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	6.1E-07	9.1E-05	2.2E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	2.0E-05	4.5E-03	NA	NA	NA	NA	NA	NA
boron	NA	1.0E-05	4.4E-04	NA	NA	NA	NA	NA	NA
cadmium	ND	1.1E-04	4.7E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.8E-04	8.8E-04	NA	NA	NA	NA	NA	NA
cobalt	2.9E-05	1.3E-05	6.2E-05	NA	NA	NA	NA	NA	NA
copper	ND	2.8E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.1E-04	5.0E-03	NA	NA	NA	NA	NA	NA
manganese	5.2E-05	4.3E-04	3.1E-02	NA	NA	NA	NA	NA	NA
mercury	1.7E-09	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.5E-04	8.6E-04	NA	NA	NA	NA	NA	NA
nickel	ND	5.4E-05	5.9E-05	NA	NA	NA	NA	NA	NA
selenium	ND	9.7E-06	2.7E-05	NA	NA	NA	NA	NA	NA
silver	ND	4.9E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	6.0E-04	1.3E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	3.1E-04	1.4E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.4E-05	1.3E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.9E-06	1.8E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.5E-07	3.9E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	2.7E-07	4.2E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.2E-05	2.7E-03	7.1E-02		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6e
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 9, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	NA	NA	NA	1.6E-05	ND	NA	NA	NA
aluminum	ND	ND	ND	NA	ND	ND	NA	NA	NA
antimony	ND	4.8E-03	7.0E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	2.1E-03	4.9E-04	NA	1.3E-03	2.0E-04	NA	NA	NA
barium	1.2E-06	6.3E-05	1.5E-04	NA	3.7E-04	6.0E-05	NA	NA	NA
beryllium	ND	9.3E-06	2.1E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.7E-04	1.6E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.9E-04	9.5E-04	NA	2.6E-04	1.7E-04	NA	NA	NA
cobalt	5.5E-05	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.2E-05	ND	NA	6.3E-05	ND	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	7.9E-04	2.3E-03	NA	NA	NA
manganese	1.3E-04	NA	NA	NA	6.8E-04	3.3E-03	NA	NA	NA
mercury	3.3E-09	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	6.5E-05	3.8E-04	NA	NA	NA	NA	NA	NA
nickel	ND	7.1E-05	7.8E-05	NA	1.6E-04	2.3E-05	NA	NA	NA
selenium	ND	1.1E-05	2.9E-05	NA	NA	NA	NA	NA	NA
silver	ND	5.7E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.7E-03	7.5E-02	NA	5.3E-03	1.5E-02	2.1E-04	2.8E-02	NA
vanadium	ND	2.2E-04	9.7E-04	NA	5.3E-04	1.5E-03	NA	NA	NA
zinc	ND	1.7E-05	1.5E-04	NA	1.5E-05	5.2E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.2E-05	1.1E-05	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	8.6E-04	1.1E-03	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	3.9E-06	6.1E-04	NA	NA	NA	NA	NA	NA
methylene chloride	6.3E-15	2.9E-08	1.9E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	5.7E-06	8.7E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	2.8E-03	5.7E-02	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	ND	ND	NA
nitrate	NA	NA	NA	NA	1.9E-04	2.8E-05	3.4E-08	ND	NA
fluoride	NA	NA	NA	NA	1.1E-03	1.6E-04	2.0E-06	1.3E-05	NA
chloride	NA	NA	NA	NA	NA	NA	ND	ND	NA
TOTAL:	1.9E-04	9.7E-03	1.7E-01		1.4E-02	8.1E-02	2.1E-04	2.8E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6f
HAZARD QUOTIENTS FOR TRESPASSING YOUTH AND EXPLORING YOUTH
AREA 10, CURRENT LAND USE, WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.9E-06	ND	NA	4.5E-05	ND	5.1E-07	ND	NA
aluminum	ND	ND	ND	NA	ND	ND	ND	ND	NA
antimony	ND	6.5E-04	9.5E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	4.9E-03	1.1E-03	NA	2.1E-03	3.2E-04	3.8E-04	2.7E-04	NA
barium	1.1E-06	6.9E-05	1.7E-04	NA	NA	NA	1.3E-05	9.4E-05	NA
beryllium	ND	2.0E-05	4.5E-03	NA	NA	NA	1.4E-05	9.7E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	8.2E-05	3.6E-03	NA	5.8E-04	1.7E-03	1.1E-04	1.5E-02	NA
chromium vi	ND	2.2E-04	1.1E-03	NA	NA	NA	7.6E-05	1.1E-03	NA
cobalt	4.0E-05	NA	NA	NA	NA	NA	2.1E-06	3.1E-05	NA
copper	ND	2.5E-05	ND	NA	NA	NA	6.7E-06	ND	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	1.7E-04	7.5E-03	NA	3.6E-04	1.1E-03	9.0E-05	1.2E-02	NA
manganese	8.5E-05	3.7E-04	2.7E-02	NA	3.4E-05	1.7E-04	1.2E-04	2.6E-02	NA
mercury	5.1E-09	1.2E-04	8.8E-03	NA	NA	NA	4.8E-06	1.1E-03	NA
molybdenum	ND	4.5E-05	2.6E-04	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	8.2E-05	1.2E-05	2.0E-05	6.8E-05	NA
selenium	ND	3.7E-06	1.0E-05	NA	2.3E-05	4.2E-06	NA	NA	NA
silver	ND	1.6E-05	ND	NA	9.3E-05	ND	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.2E-03	5.5E-02	NA	1.3E-03	3.9E-03	1.6E-04	2.1E-02	NA
vanadium	ND	NA	NA	NA	NA	NA	6.4E-05	8.7E-04	NA
zinc	ND	1.3E-05	1.1E-04	NA	5.8E-06	2.0E-06	5.6E-06	1.5E-04	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.6E-07	6.5E-07	NA	3.4E-04	2.3E-02	5.6E-08	1.7E-07	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	3.0E-07	4.6E-05	NA	NA	NA	1.8E-07	8.5E-05	NA
methylene chloride	6.3E-15	NA	NA	NA	NA	NA	2.4E-09	4.8E-07	NA
pyrene	NA	3.1E-07	4.9E-05	NA	NA	NA	1.8E-07	8.4E-05	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.9E-08	1.9E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	2.1E-10	4.2E-09	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	ND	ND	NA
nitrate	NA	NA	NA	NA	1.2E-04	1.7E-05	3.6E-08	ND	NA
nitrite	NA	NA	NA	NA	1.7E-03	5.1E-03	NA	NA	NA
fluoride	NA	NA	NA	NA	4.4E-04	6.5E-05	2.6E-06	1.8E-05	NA
chloride	NA	NA	NA	NA	NA	NA	ND	ND	NA
TOTAL:	1.3E-04	7.9E-03	1.2E-01		7.3E-03	3.5E-02	1.1E-03	8.9E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6g
HAZARD QUOTIENTS FOR EXPLORING YOUTH
AREA 1, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	4.1E-07	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	2.4E-03	5.7E-04	NA	NA	NA	NA	NA	NA
barium	2.6E-06	1.2E-04	2.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.2E-05	2.7E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.9E-05	3.1E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.2E-04	1.1E-03	NA	NA	NA	NA	NA	NA
cobalt	7.3E-05	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.5E-04	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.8E-04	7.9E-03	NA	NA	NA	NA	NA	NA
manganese	1.5E-04	5.2E-04	3.8E-02	NA	NA	NA	NA	NA	NA
mercury	1.4E-08	3.6E-05	2.6E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	8.7E-05	5.1E-04	NA	NA	NA	NA	NA	NA
nickel	ND	7.5E-05	8.3E-05	NA	NA	NA	NA	NA	NA
selenium	ND	5.3E-06	1.5E-05	NA	NA	NA	NA	NA	NA
silver	ND	6.2E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	3.3E-04	7.4E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.3E-03	1.0E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	2.4E-04	1.0E-03	NA	NA	NA	NA	NA	NA
zinc	ND	2.7E-05	2.4E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.8E-07	3.7E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.2E-08	3.1E-06	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	7.1E-06	1.1E-03	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-14	1.3E-08	8.9E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	7.1E-06	1.1E-03	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	6.3E-09	6.2E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E-04	6.9E-03	1.6E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6b
HAZARD QUOTIENTS FOR EXPLORING YOUTH
AREA 2, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.2E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.3E-03	4.9E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	2.6E-03	6.0E-04	NA	NA	NA	NA	NA	NA
barium	4.2E-06	3.0E-04	7.3E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.9E-05	4.1E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.9E-04	1.7E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.8E-04	1.9E-03	NA	NA	NA	NA	NA	NA
cobalt	1.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	6.6E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	NA	NA	NA	NA	NA	NA	NA	NA
manganese	2.1E-04	NA	NA	NA	NA	NA	NA	NA	NA
mercury	2.4E-08	2.3E-04	1.7E-02	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.3E-04	7.3E-04	NA	NA	NA	NA	NA	NA
nickel	ND	8.3E-05	9.2E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.4E-05	4.0E-05	NA	NA	NA	NA	NA	NA
silver	ND	5.9E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.2E-02	9.6E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	2.5E-04	1.1E-03	NA	NA	NA	NA	NA	NA
zinc	ND	3.2E-05	2.8E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.2E-07	8.0E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.8E-08	2.1E-06	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	5.7E-06	8.7E-04	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-14	2.1E-08	1.4E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	6.3E-06	9.7E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	7.6E-08	7.4E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.1E-04	2.9E-02	1.1E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6i
HAZARD QUOTIENTS FOR EXPLORING YOUTH
AREA 3, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.0E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	3.8E-03	8.9E-04	NA	NA	NA	NA	NA	NA
barium	2.9E-06	3.2E-04	7.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.3E-05	2.8E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.6E-04	1.1E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	6.3E-04	3.1E-03	NA	NA	NA	NA	NA	NA
cobalt	9.2E-05	1.1E-05	5.6E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.5E-04	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	NA	NA	NA	NA	NA	NA	NA	NA
manganese	1.8E-04	4.2E-04	3.1E-02	NA	NA	NA	NA	NA	NA
mercury	1.5E-08	1.0E-04	7.4E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.8E-05	3.4E-04	NA	NA	NA	NA	NA	NA
nickel	ND	9.1E-05	1.0E-04	NA	NA	NA	NA	NA	NA
selenium	ND	2.4E-05	6.6E-05	NA	NA	NA	NA	NA	NA
silver	ND	9.3E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	3.5E-04	7.8E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.3E-02	5.7E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	2.3E-04	1.0E-03	NA	NA	NA	NA	NA	NA
zinc	ND	7.9E-05	7.0E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.2E-05	1.1E-05	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.8E-06	1.2E-04	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.7E-07	2.0E-05	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	7.9E-06	1.2E-03	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-13	5.2E-08	3.4E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.0E-06	3.0E-04	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.8E-04	2.0E-02	6.4E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6j
HAZARD QUOTIENTS FOR EXPLORING YOUTH
AREA 4, CURRENT LAND USE, WITHOUT ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	4.7E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	ND	ND	ND	ND	NA
antimony	ND	6.5E-03	9.5E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	1.6E-03	3.7E-04	NA	NA	NA	7.2E-04	5.1E-04	NA
barium	3.5E-06	8.7E-05	2.1E-04	NA	1.0E-04	1.7E-05	3.4E-05	2.5E-04	NA
beryllium	ND	1.0E-05	2.3E-03	NA	3.5E-05	5.1E-04	3.4E-06	2.3E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.7E-04	1.6E-02	NA	7.3E-04	2.1E-03	NA	NA	NA
chromium vi	ND	3.2E-04	1.6E-03	NA	4.1E-04	2.6E-04	5.4E-05	8.1E-04	NA
cobalt	1.2E-04	1.8E-05	8.6E-05	NA	2.6E-05	3.4E-06	3.8E-06	5.6E-05	NA
copper	ND	3.9E-05	ND	NA	4.9E-05	ND	1.1E-05	ND	NA
lead	ND	ND	ND	NA	NA	NA	ND	ND	NA
magnesium	ND	NA	NA	NA	2.8E-04	8.3E-04	5.6E-05	7.5E-03	NA
manganese	2.0E-04	NA	NA	NA	5.4E-05	2.6E-04	2.4E-04	5.4E-02	NA
mercury	1.8E-08	4.2E-05	3.1E-03	NA	2.3E-04	2.3E-04	NA	NA	NA
molybdenum	ND	5.3E-05	3.1E-04	NA	5.3E-04	2.1E-04	2.7E-05	4.8E-04	NA
nickel	ND	7.8E-05	8.6E-05	NA	7.7E-05	1.1E-05	2.2E-05	7.5E-05	NA
selenium	ND	6.5E-06	1.8E-05	NA	NA	NA	NA	NA	NA
silver	ND	5.7E-05	ND	NA	NA	NA	2.8E-05	ND	NA
thallium	ND	4.5E-04	9.9E-04	NA	NA	NA	2.2E-04	1.5E-03	NA
uranium-total	ND	2.4E-02	1.1E+00	NA	3.6E-02	1.1E-01	2.1E-04	2.9E-02	NA
vanadium	ND	2.5E-04	1.1E-03	NA	3.1E-04	9.1E-04	8.8E-05	1.2E-03	NA
zinc	ND	2.2E-05	1.9E-04	NA	1.3E-05	4.4E-06	5.0E-06	1.3E-04	NA
acetone	NA	NA	NA	NA	NA	NA	2.3E-08	5.5E-07	NA
bis(2-ethylhexyl)phthalate	ND	3.0E-07	3.0E-07	NA	NA	NA	1.4E-07	4.3E-07	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.5E-08	1.7E-06	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	ND	ND	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.2E-07	3.4E-05	NA	NA	NA	7.2E-07	3.4E-04	NA
methylene chloride	2.4E-14	1.4E-08	9.6E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	2.1E-07	3.2E-05	NA	NA	NA	6.8E-07	3.2E-04	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.1E-08	4.0E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	1.7E-04	2.4E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	8.5E-04	1.2E-04	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.2E-04	3.4E-02	1.2E+00		4.0E-02	1.1E-01	1.7E-03	9.8E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-6k
HAZARD QUOTIENTS FOR EXPLORING YOUTH
PADDYS RUN OFF-PROPERTY, CURRENT LAND USE

Transfer Media:	Surface Water		Sediments		
Exposure Pathways: / Toxicants	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	NA	NA	NA	NA	NA
aluminum	NA	NA	ND	ND	NA
antimony	4.2E-03	4.1E-03	NA	NA	NA
arsenic	9.3E-04	1.4E-04	3.3E-04	2.3E-04	NA
barium	8.2E-05	1.3E-05	9.3E-06	6.9E-05	NA
beryllium	NA	NA	7.5E-06	5.0E-03	NA
boron	NA	NA	NA	NA	NA
cadmium	NA	NA	NA	NA	NA
chromium vi	NA	NA	2.3E-05	3.4E-04	NA
cobalt	NA	NA	NA	NA	NA
copper	NA	NA	4.3E-06	ND	NA
lead	ND	ND	ND	ND	NA
magnesium	3.2E-04	9.4E-04	5.8E-05	7.8E-03	NA
manganese	4.7E-05	2.3E-04	7.4E-05	1.7E-02	NA
mercury	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA
nickel	NA	NA	6.3E-06	2.1E-05	NA
selenium	NA	NA	NA	NA	NA
silver	NA	NA	1.0E-06	ND	NA
thallium	2.3E-03	3.4E-04	NA	NA	NA
uranium-total	3.4E-04	1.0E-03	7.6E-05	1.0E-02	NA
vanadium	NA	NA	5.0E-05	6.7E-04	NA
zinc	NA	NA	3.4E-06	9.2E-05	NA
acetone	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	1.3E-04	8.7E-03	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA
methylene chloride	NA	NA	2.0E-09	4.1E-07	NA
pyrene	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA
di-n-octylphthalate	5.2E-04	2.6E+01	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA
ammonia	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	NA
fluoride	3.7E-04	5.4E-05	NA	NA	NA
chloride	NA	NA	NA	NA	NA
TOTAL:	9.3E-03	2.6E+01	6.4E-04	4.1E-02	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-7a
ILCRs FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 1, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides						
Cs_{137+1d}	3.4E-12	4.8E-12	3.3E-06	4.6E-06	NA	NA
Np_{237+1d}	4.3E-14	1.6E-14	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	7.4E-15	5.9E-15	NA	NA	NA	NA
$Pu_{239/240}$	2.3E-15	1.9E-15	6.6E-11	5.3E-11	NA	NA
Ra_{226+5d}	1.0E-10	7.4E-10	NA	NA	4.7E-09	4.0E-08
Ra_{228+1d}	1.0E-11	7.4E-11	NA	NA	7.3E-09	6.3E-08
Ru_{106}	3.0E-14	3.7E-17	NA	NA	NA	NA
Sr_{90+1d}	7.3E-13	1.5E-11	6.0E-06	1.2E-04	NA	NA
Tc_{99}	1.5E-12	6.8E-12	1.3E-05	5.9E-05	NA	NA
Th_{228+7d}	2.6E-14	8.9E-14	4.8E-10	1.6E-09	NA	NA
Th_{230}	9.3E-13	3.1E-12	1.3E-10	4.4E-10	3.1E-12	1.2E-11
Th_{232}	5.0E-14	1.7E-13	NA	NA	2.6E-12	1.1E-11
U_{234}	1.8E-11	2.2E-10	1.6E-08	2.0E-07	3.2E-09	4.6E-08
$U_{235/236}$	1.4E-12	1.7E-11	4.4E-09	5.3E-08	5.0E-10	7.2E-09
U_{238+2d}	3.3E-11	4.0E-10	2.7E-08	3.3E-07	7.3E-09	1.0E-07
Rn_{222+4d}	ND	ND	NA	NA	NA	NA
Total Radionuclides	1.7E-10	1.5E-09	2.2E-05	1.8E-04	2.3E-08	2.6E-07
Chemicals						
arsenic	8.7E-10	1.0E-10	5.5E-05	6.6E-06	9.7E-07	1.4E-07
beryllium	1.3E-10	4.6E-13	6.2E-06	2.2E-08	NA	NA
cadmium	ND	ND	ND	ND	ND	ND
chromium vi	ND	ND	NA	NA	NA	NA
nickel	ND	ND	ND	ND	ND	ND
benzene	4.3E-21	5.5E-21	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.9E-16	1.8E-15	3.9E-08	8.6E-08	1.1E-07	3.1E-07
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	8.6E-17	1.1E-16	2.2E-10	2.8E-10	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	2.4E-21	3.3E-21	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-20	5.5E-20	NA	NA	NA	NA
n-nitrosodiphenylamine	4.0E-18	5.5E-18	NA	NA	NA	NA
n-nitrosodipropylamine	1.8E-18	2.4E-18	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.1E-11	6.4E-11	2.1E-10	2.7E-10	NA	NA
trichloroethene	4.1E-12	5.2E-12	1.1E-11	1.4E-11	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E-13	2.2E-13	9.5E-08	1.2E-07	NA	NA
benzo(a)pyrene	3.4E-11	4.4E-11	1.5E-05	1.9E-05	NA	NA
benzo(b)fluoranthene	4.5E-12	5.8E-12	1.3E-06	1.6E-06	NA	NA
benzo(k)fluoranthene	9.1E-12	1.1E-11	2.6E-06	3.3E-06	NA	NA
chrysene	1.2E-14	1.6E-14	8.0E-09	1.0E-08	NA	NA
dibenzo(a,h)anthracene	5.6E-11	7.1E-11	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.9E-11	2.4E-11	5.5E-06	7.0E-06	NA	NA
aroclor-1254	4.5E-10	5.7E-10	NA	NA	NA	NA
aroclor-1260	3.4E-11	4.3E-11	NA	NA	NA	NA
4,4-ddt	5.9E-14	7.5E-14	NA	NA	NA	NA
4,4-dde	3.3E-15	4.2E-15	NA	NA	NA	NA
chlordane	1.1E-15	1.3E-15	NA	NA	NA	NA
dieldrin	2.7E-15	3.4E-15	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-11	1.6E-11	NA	NA	NA	NA
octachlorodibenzofuran	8.2E-12	1.2E-11	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E-09	9.7E-10	8.6E-05	3.8E-05	1.1E-06	4.5E-07
Sum Chem (BaP for PAHs):	1.9E-09	1.3E-09	1.6E-04	1.3E-04	1.1E-06	4.5E-07
TOTAL ALL (TEF Approach):	1.8E-09	2.4E-09	1.1E-04	2.2E-04	1.1E-06	7.1E-07
TOTAL ALL (BaP Approach):	2.1E-09	2.8E-09	1.8E-04	3.1E-04	1.1E-06	7.1E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–7b
ILCRs FOR OFF–PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 2, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides						
Cs_{137+1d}	2.2E–12	3.0E–12	3.6E–06	5.0E–06	NA	NA
Np_{237+1d}	2.1E–14	7.5E–15	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	1.7E–15	1.3E–15	NA	NA	NA	NA
$Pu_{239/240}$	1.0E–15	8.4E–16	NA	NA	NA	NA
Ra_{226+5d}	5.2E–11	3.8E–10	NA	NA	NA	NA
Ra_{228+1d}	1.7E–12	1.2E–11	NA	NA	NA	NA
Ru_{106}	3.3E–14	4.1E–17	NA	NA	NA	NA
Sr_{90+1d}	2.8E–13	5.6E–12	6.2E–06	1.2E–04	NA	NA
Tc_{99}	5.1E–13	2.4E–12	NA	NA	NA	NA
Th_{228+7d}	1.2E–14	3.9E–14	1.3E–09	4.6E–09	NA	NA
Th_{230}	1.2E–13	4.0E–13	1.6E–10	5.5E–10	NA	NA
Th_{232}	1.3E–14	4.2E–14	NA	NA	NA	NA
U_{234}	3.9E–12	4.6E–11	2.0E–08	2.4E–07	NA	NA
$U_{235/236}$	3.6E–13	4.3E–12	8.7E–09	1.0E–07	NA	NA
U_{238+2d}	8.7E–12	1.0E–10	4.3E–08	5.2E–07	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.0E–11	5.6E–10	9.9E–06	1.3E–04	0.0E+00	0.0E+00
Chemicals						
arsenic	5.5E–10	6.7E–11	NA	NA	NA	NA
beryllium	7.8E–11	2.8E–13	7.5E–06	2.7E–08	NA	NA
cadmium	ND	ND	ND	ND	NA	NA
chromium vi	ND	ND	ND	ND	NA	NA
nickel	ND	ND	ND	ND	NA	NA
benzene	7.9E–21	1.0E–20	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	6.0E–16	1.3E–15	3.6E–09	8.0E–09	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	2.8E–17	3.6E–17	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	3.1E–21	4.2E–21	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	8.3E–21	1.7E–20	NA	NA	NA	NA
n–nitrosodiphenylamine	7.7E–18	1.1E–17	NA	NA	NA	NA
n–nitrosodipropylamine	3.3E–18	4.4E–18	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.1E–10	1.0E–09	NA	NA	NA	NA
trichloroethene	6.6E–11	8.4E–11	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.1E–13	1.5E–13	NA	NA	NA	NA
benzo(a)pyrene	2.5E–11	3.1E–11	NA	NA	NA	NA
benzo(b)fluoranthene	4.0E–12	5.0E–12	NA	NA	NA	NA
benzo(k)fluoranthene	8.3E–12	1.1E–11	NA	NA	NA	NA
chrysene	1.0E–14	1.3E–14	5.2E–09	6.7E–09	NA	NA
dibenzo(a,h)anthracene	4.3E–11	5.4E–11	NA	NA	NA	NA
indeno(1,2,3–cd)pyrene	1.6E–11	2.0E–11	NA	NA	NA	NA
aroclor–1254	1.6E–10	2.0E–10	NA	NA	NA	NA
aroclor–1260	6.2E–11	7.9E–11	NA	NA	NA	NA
4,4–ddt	6.4E–14	8.1E–14	NA	NA	NA	NA
4,4–dde	8.9E–16	1.1E–15	NA	NA	NA	NA
chlordane	1.2E–15	1.5E–15	NA	NA	NA	NA
dieldrin	1.3E–15	1.7E–15	NA	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	2.2E–11	3.1E–11	NA	NA	NA	NA
octachlorodibenzofuran	1.5E–11	2.2E–11	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.9E–09	1.6E–09	7.5E–06	4.2E–08	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	2.1E–09	1.9E–09	8.7E–06	1.5E–06	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	1.9E–09	2.2E–09	1.7E–05	1.3E–04	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.2E–09	2.5E–09	1.9E–05	1.3E–04	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-7c
ILCRs FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 3, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides						
Cs_{137+1d}	3.4E-12	4.8E-12	3.7E-06	5.2E-06	NA	NA
Np_{237+1d}	4.3E-14	1.6E-14	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA
Pu_{238}	7.4E-15	5.9E-15	NA	NA	NA	NA
$Pu_{239/240}$	2.3E-15	1.9E-15	NA	NA	NA	NA
Ra_{226+5d}	1.0E-10	7.4E-10	NA	NA	NA	NA
Ra_{228+1d}	1.0E-11	7.4E-11	7.1E-08	5.1E-07	NA	NA
Ru_{106}	3.0E-14	3.7E-17	NA	NA	NA	NA
Sr_{90+1d}	7.3E-13	1.5E-11	3.7E-06	7.4E-05	NA	NA
Tc_{99}	1.5E-12	6.8E-12	NA	NA	NA	NA
Th_{228+7d}	2.6E-14	8.9E-14	5.9E-10	2.0E-09	NA	NA
Th_{230}	9.3E-13	3.1E-12	1.9E-10	6.4E-10	NA	NA
Th_{232}	5.0E-14	1.7E-13	8.7E-11	2.9E-10	NA	NA
U_{234}	1.8E-11	2.2E-10	7.0E-08	8.4E-07	NA	NA
$U_{235/236}$	1.4E-12	1.7E-11	5.5E-09	6.7E-08	NA	NA
U_{238+2d}	3.3E-11	4.0E-10	1.3E-07	1.6E-06	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.7E-10	1.5E-09	7.7E-06	8.3E-05	0.0E+00	0.0E+00
Chemicals						
arsenic	8.7E-10	1.0E-10	NA	NA	NA	NA
beryllium	1.3E-10	4.6E-13	2.3E-06	8.4E-09	NA	NA
cadmium	ND	ND	ND	ND	NA	NA
chromium vi	ND	ND	NA	NA	NA	NA
nickel	ND	ND	ND	ND	NA	NA
benzene	4.3E-21	5.5E-21	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	7.9E-16	1.8E-15	2.5E-09	5.6E-09	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	8.6E-17	1.1E-16	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	2.4E-21	3.3E-21	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-20	5.5E-20	4.7E-12	9.5E-12	NA	NA
n-nitrosodiphenylamine	4.0E-18	5.5E-18	NA	NA	NA	NA
n-nitrosodipropylamine	1.8E-18	2.4E-18	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.1E-11	6.4E-11	NA	NA	NA	NA
trichloroethene	4.1E-12	5.2E-12	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E-13	2.2E-13	9.5E-08	1.2E-07	NA	NA
benzo(a)pyrene	3.4E-11	4.4E-11	1.3E-05	1.6E-05	NA	NA
benzo(b)fluoranthene	4.5E-12	5.8E-12	1.6E-06	2.0E-06	NA	NA
benzo(k)fluoranthene	9.1E-12	1.1E-11	2.7E-06	3.4E-06	NA	NA
chrysene	1.2E-14	1.6E-14	7.7E-09	9.8E-09	NA	NA
dibenzo(a,h)anthracene	5.6E-11	7.1E-11	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.9E-11	2.4E-11	NA	NA	NA	NA
aroclor-1254	4.5E-10	5.7E-10	NA	NA	NA	NA
aroclor-1260	3.4E-11	4.3E-11	NA	NA	NA	NA
4,4-ddt	5.9E-14	7.5E-14	NA	NA	NA	NA
4,4-dde	3.3E-15	4.2E-15	NA	NA	NA	NA
chlordane	1.1E-15	1.3E-15	NA	NA	NA	NA
dieldrin	2.7E-15	3.4E-15	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-11	1.6E-11	NA	NA	NA	NA
octachlorodibenzofuran	8.2E-12	1.2E-11	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E-09	9.7E-10	2.0E-05	2.2E-05	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	1.9E-09	1.3E-09	8.3E-05	1.0E-04	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	1.8E-09	2.4E-09	2.7E-05	1.0E-04	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.1E-09	2.8E-09	9.0E-05	1.8E-04	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-7d
ILCRs FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 4, CURRENT LAND USE WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Contaminants of Concern	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
Radionuclides						
Cs_{137+1d}	5.4E-12	7.6E-12	3.0E-06	4.2E-06	NA	NA
Np_{237+1d}	5.3E-14	1.9E-14	7.3E-08	2.7E-08	8.3E-10	3.6E-10
Pb_{210+2d}	NA	NA	3.7E-05	1.2E-04	NA	NA
Pu_{238}	5.0E-15	4.0E-15	2.6E-11	2.0E-11	NA	NA
$Pu_{239/240}$	3.0E-15	2.4E-15	6.6E-11	5.3E-11	8.6E-12	8.2E-12
Ra_{226+5d}	2.8E-10	2.0E-09	7.1E-07	5.1E-06	NA	NA
Ra_{228+1d}	1.3E-11	9.2E-11	1.1E-07	8.2E-07	NA	NA
Ru_{106}	6.2E-14	7.7E-17	3.0E-07	3.7E-10	NA	NA
Sr_{90+1d}	1.3E-12	2.7E-11	7.2E-06	1.4E-04	NA	NA
Tc_{99}	3.4E-12	1.6E-11	4.6E-05	2.2E-04	NA	NA
Th_{228+7d}	3.3E-14	1.1E-13	2.1E-09	7.2E-09	NA	NA
Th_{230}	1.6E-12	5.5E-12	3.5E-09	1.2E-08	1.8E-11	7.2E-11
Th_{232}	6.1E-14	2.0E-13	3.7E-10	1.2E-09	NA	NA
U_{234}	1.8E-11	2.2E-10	1.7E-07	2.1E-06	3.4E-07	5.0E-06
$U_{235/236}$	1.4E-12	1.6E-11	2.9E-08	3.5E-07	1.2E-08	1.8E-07
U_{238+2d}	3.2E-11	3.8E-10	2.9E-06	3.4E-05	6.2E-07	9.0E-06
Rn_{222+4d}	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.5E-10	2.8E-09	9.8E-05	5.3E-04	9.8E-07	1.4E-05
Chemicals						
arsenic	1.2E-09	1.4E-10	2.0E-04	2.4E-05	6.1E-07	8.8E-08
beryllium	1.5E-10	5.4E-13	3.5E-06	1.3E-08	NA	NA
cadmium	ND	ND	ND	ND	NA	NA
chromium vi	ND	ND	ND	ND	ND	ND
nickel	ND	ND	ND	ND	ND	ND
benzene	2.6E-20	3.4E-20	3.3E-11	4.2E-11	NA	NA
bis(2-ethylhexyl)phthalate	1.7E-15	3.8E-15	2.0E-07	4.6E-07	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbazole	1.8E-16	2.2E-16	2.2E-09	2.8E-09	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
chloroform	1.1E-20	1.5E-20	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
methylene chloride	6.2E-20	1.3E-19	9.4E-11	1.9E-10	NA	NA
n-nitrosodiphenylamine	1.3E-17	1.8E-17	NA	NA	NA	NA
n-nitrosodipropylamine	1.1E-17	1.5E-17	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.4E-10	4.4E-10	1.2E-09	1.5E-09	4.0E-08	6.1E-08
trichloroethene	2.8E-11	3.5E-11	3.3E-11	4.2E-11	6.4E-11	9.7E-11
vinyl chloride	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E-13	5.4E-13	5.3E-06	6.8E-06	NA	NA
benzo(a)pyrene	9.3E-11	1.2E-10	4.0E-04	5.1E-04	NA	NA
benzo(b)fluoranthene	1.4E-11	1.7E-11	2.5E-04	3.1E-04	NA	NA
benzo(k)fluoranthene	3.0E-11	3.7E-11	6.3E-05	8.0E-05	NA	NA
chrysene	3.4E-14	4.3E-14	6.2E-07	7.8E-07	NA	NA
dibenzo(a,h)anthracene	1.7E-10	2.2E-10	3.7E-04	4.7E-04	NA	NA
indeno(1,2,3-cd)pyrene	5.5E-11	7.0E-11	2.3E-04	3.0E-04	NA	NA
aroclor-1254	6.4E-10	8.2E-10	9.5E-05	1.2E-04	NA	NA
aroclor-1260	2.0E-10	2.6E-10	2.3E-03	2.9E-03	NA	NA
4,4-ddt	2.0E-13	2.5E-13	NA	NA	NA	NA
4,4-dde	2.8E-15	3.5E-15	NA	NA	NA	NA
chlordane	2.0E-15	2.6E-15	NA	NA	NA	NA
dieldrin	3.0E-15	3.8E-15	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.3E-11	6.1E-11	6.3E-04	9.0E-04	NA	NA
octachlorodibenzofuran	5.1E-11	7.3E-11	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.0E-09	2.3E-09	4.6E-03	5.7E-03	6.5E-07	1.5E-07
Sum Chem (BaP for PAHs):	3.8E-09	3.3E-09	8.2E-03	1.0E-02	6.5E-07	1.5E-07
TOTAL ALL (TEF Approach):	3.4E-09	5.1E-09	4.7E-03	6.2E-03	1.6E-06	1.4E-05
TOTAL ALL (BaP Approach):	4.1E-09	6.0E-09	8.3E-03	1.1E-02	1.6E-06	1.4E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-8a
HAZARD QUOTIENTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 1, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Toxicants	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
cyanide	2.7E-14	3.5E-14	2.4E-06	3.0E-06	1.1E-09	1.7E-09
aluminum	ND	ND	NA	NA	ND	ND
antimony	4.1E-06	1.6E-06	2.9E-01	1.1E-01	NA	NA
arsenic	1.7E-06	2.0E-07	1.0E-01	1.3E-02	1.8E-03	2.7E-04
barium	4.8E-08	4.5E-07	NA	NA	NA	NA
beryllium	5.9E-09	2.1E-11	2.9E-04	1.0E-06	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.0E-06	7.2E-06	4.4E-02	3.2E-01	1.4E-04	1.2E-03
chromium vi	5.2E-07	5.7E-07	NA	NA	NA	NA
cobalt	9.7E-08	3.9E-08	NA	NA	NA	NA
copper	1.5E-06	9.0E-07	7.6E-02	4.6E-02	NA	NA
lead	ND	ND	ND	ND	ND	ND
magnesium	2.4E-07	7.8E-07	8.0E-01	2.6E+00	8.0E-04	3.1E-03
manganese	2.8E-07	1.0E-06	NA	NA	6.0E-06	2.5E-05
mercury	7.2E-06	5.2E-08	NA	NA	NA	NA
molybdenum	5.3E-07	5.3E-07	1.4E-01	1.4E-01	NA	NA
nickel	4.2E-07	2.8E-07	1.5E-02	1.0E-02	2.2E-04	1.7E-04
selenium	8.0E-08	8.6E-08	4.3E-03	4.6E-03	1.5E-04	2.0E-04
silver	7.4E-07	2.0E-05	1.1E-01	2.9E+00	1.2E-04	3.9E-03
thallium	3.4E-06	6.7E-07	NA	NA	NA	NA
uranium-total	6.3E-07	7.6E-06	7.7E-04	9.3E-03	1.2E-04	1.7E-03
vanadium	1.8E-07	5.8E-09	NA	NA	NA	NA
zinc	7.4E-05	3.0E-05	1.5E+00	6.0E-01	2.6E-04	1.2E-04
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.8E-12	6.3E-12	1.4E-04	3.1E-04	4.1E-04	1.1E-03
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	4.0E-17	5.5E-17	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	2.1E-05	2.7E-05	NA	NA
methylene chloride	5.9E-17	1.2E-16	NA	NA	NA	NA
pyrene	NA	NA	3.2E-05	4.0E-05	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	ND	ND	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-08	1.2E-07	4.1E-07	5.2E-07	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	3.5E-10	4.4E-10	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-12	4.3E-12	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND
nitrate	NA	NA	NA	NA	ND	ND
fluoride	NA	NA	NA	NA	ND	ND
chloride	NA	NA	NA	NA	NA	NA
TOTAL:	9.7E-05	7.1E-05	3.1E+00	6.7E+00	4.1E-03	1.2E-02

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-8b
HAZARD QUOTIENTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 2, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Toxicants	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
cyanide	9.4E-15	1.2E-14	6.0E-06	7.6E-06	NA	NA
aluminum	ND	ND	ND	ND	NA	NA
antimony	3.6E-06	1.5E-06	NA	NA	NA	NA
arsenic	1.1E-06	1.3E-07	NA	NA	NA	NA
barium	2.7E-08	2.5E-07	1.9E-03	1.8E-02	NA	NA
beryllium	3.6E-09	1.3E-11	3.5E-04	1.3E-06	NA	NA
boron	NA	NA	2.6E-02	2.0E-01	NA	NA
cadmium	9.1E-07	6.6E-06	3.0E-02	2.2E-01	NA	NA
chromium vi	3.5E-07	3.8E-07	1.4E-02	1.5E-02	NA	NA
cobalt	7.1E-08	2.8E-08	6.2E-03	2.5E-03	NA	NA
copper	5.2E-07	3.1E-07	8.8E-02	5.3E-02	NA	NA
lead	ND	ND	ND	ND	NA	NA
magnesium	1.6E-07	5.0E-07	6.0E-01	1.9E+00	NA	NA
manganese	1.7E-07	6.1E-07	4.0E-02	1.4E-01	NA	NA
mercury	2.4E-06	1.7E-08	NA	NA	NA	NA
molybdenum	3.4E-07	3.4E-07	2.1E-01	2.1E-01	NA	NA
nickel	3.4E-07	2.3E-07	1.8E-02	1.2E-02	NA	NA
selenium	6.7E-08	7.2E-08	4.2E-03	4.4E-03	NA	NA
silver	5.6E-07	1.5E-05	NA	NA	NA	NA
thallium	3.6E-06	7.1E-07	2.8E-01	5.5E-02	NA	NA
uranium-total	1.7E-07	2.0E-06	1.2E-03	1.5E-02	NA	NA
vanadium	1.2E-07	3.9E-09	NA	NA	NA	NA
zinc	1.4E-04	5.5E-05	2.0E+00	8.2E-01	NA	NA
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.1E-12	4.8E-12	1.3E-05	2.9E-05	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	5.0E-17	6.8E-17	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	1.6E-05	2.1E-05	NA	NA
methylene chloride	1.8E-17	3.7E-17	NA	NA	NA	NA
pyrene	NA	NA	2.1E-04	2.6E-04	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	ND	ND	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E-06	2.0E-06	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	3.8E-10	4.8E-10	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	1.6E-12	2.1E-12	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
TOTAL:	1.5E-04	8.5E-05	3.4E+00	3.7E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-8c
HAZARD QUOTIENTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS GRAZING AREA 3, CURRENT LAND USE WITH AND WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Toxicants	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
cyanide	2.7E-14	3.5E-14	1.2E-06	1.6E-06	NA	NA
aluminum	ND	ND	ND	ND	NA	NA
antimony	4.1E-06	1.6E-06	1.0E-01	4.0E-02	NA	NA
arsenic	1.7E-06	2.0E-07	NA	NA	NA	NA
barium	4.8E-08	4.5E-07	1.7E-03	1.6E-02	NA	NA
beryllium	5.9E-09	2.1E-11	1.1E-04	3.9E-07	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.0E-06	7.2E-06	2.5E-02	1.8E-01	NA	NA
chromium vi	5.2E-07	5.7E-07	NA	NA	NA	NA
cobalt	9.7E-08	3.9E-08	NA	NA	NA	NA
copper	1.5E-06	9.0E-07	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA
magnesium	2.4E-07	7.8E-07	1.6E+00	5.1E+00	NA	NA
manganese	2.8E-07	1.0E-06	4.6E-02	1.6E-01	NA	NA
mercury	7.2E-06	5.2E-08	NA	NA	NA	NA
molybdenum	5.3E-07	5.3E-07	1.3E-01	1.3E-01	NA	NA
nickel	4.2E-07	2.8E-07	1.3E-02	8.3E-03	NA	NA
selenium	8.0E-08	8.6E-08	NA	NA	NA	NA
silver	7.4E-07	2.0E-05	NA	NA	NA	NA
thallium	3.4E-06	6.7E-07	3.1E-01	6.2E-02	NA	NA
uranium-total	6.3E-07	7.6E-06	4.0E-03	4.9E-02	NA	NA
vanadium	1.8E-07	5.8E-09	9.3E-03	3.0E-04	NA	NA
zinc	7.4E-05	3.0E-05	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.8E-12	6.3E-12	8.8E-06	2.0E-05	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	4.0E-17	5.5E-17	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	1.8E-05	2.3E-05	NA	NA
methylene chloride	5.9E-17	1.2E-16	1.0E-08	2.1E-08	NA	NA
pyrene	NA	NA	2.6E-05	3.3E-05	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	ND	ND	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.7E-08	1.2E-07	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	3.5E-10	4.4E-10	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-12	4.3E-12	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA
TOTAL:	9.7E-05	7.1E-05	2.2E+00	5.7E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-8d
HAZARD QUOTIENTS FOR OFF-PROPERTY USER OF MEAT AND MILK PRODUCTS
GRAZING AREA 4, CURRENT LAND USE WITHOUT ACCESS CONTROLS

Transfer Media:	Air		Soil		Surface Water	
Exposure Pathways: / Toxicants	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Meat	Ingestion of Milk Products
cyanide	2.4E-14	3.0E-14	2.4E-06	3.1E-06	4.0E-10	6.1E-10
aluminum	ND	ND	ND	ND	ND	ND
antimony	6.2E-06	2.5E-06	8.1E-01	3.2E-01	NA	NA
arsenic	2.2E-06	2.7E-07	3.8E-01	4.5E-02	1.2E-03	1.7E-04
barium	5.7E-08	5.3E-07	1.4E-03	1.3E-02	2.5E-05	2.7E-04
beryllium	7.0E-09	2.5E-11	1.6E-04	5.9E-07	NA	NA
boron	NA	NA	NA	NA	NA	NA
cadmium	1.5E-06	1.1E-05	9.2E-02	6.7E-01	NA	NA
chromium vi	6.6E-07	7.2E-07	1.5E-02	1.6E-02	6.4E-04	8.4E-04
cobalt	1.2E-07	5.0E-08	NA	NA	NA	NA
copper	1.3E-06	8.0E-07	1.5E-01	9.2E-02	2.8E-04	2.0E-04
lead	ND	ND	ND	ND	ND	ND
magnesium	2.8E-07	8.9E-07	9.2E-01	2.9E+00	1.7E-03	6.7E-03
manganese	3.5E-07	1.2E-06	5.2E-02	1.8E-01	1.2E-04	5.1E-04
mercury	7.6E-06	5.5E-08	4.7E+00	3.4E-02	NA	NA
molybdenum	6.3E-07	6.3E-07	1.2E-01	1.2E-01	NA	NA
nickel	5.8E-07	3.9E-07	2.2E-02	1.4E-02	4.2E-04	3.3E-04
selenium	1.1E-07	1.2E-07	4.5E-03	4.8E-03	NA	NA
silver	9.4E-07	2.5E-05	1.2E-01	3.3E+00	NA	NA
thallium	5.6E-06	1.1E-06	1.2E-01	2.3E-02	NA	NA
uranium-total	5.8E-07	6.9E-06	1.1E-02	1.4E-01	4.7E-04	6.7E-03
vanadium	2.2E-07	7.1E-09	7.3E-03	2.3E-04	5.8E-04	2.2E-05
zinc	1.6E-04	6.6E-05	4.9E+00	2.0E+00	6.6E-04	3.2E-04
acetone	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.0E-12	1.3E-11	7.3E-04	1.6E-03	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA
chloroform	1.8E-16	2.4E-16	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	1.3E-06	2.0E-06
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	6.8E-04	8.6E-04	NA	NA
methylene chloride	1.4E-16	2.8E-16	2.1E-07	4.2E-07	NA	NA
pyrene	NA	NA	2.2E-03	2.7E-03	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	ND	ND	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.6E-07	8.4E-07	2.3E-06	2.9E-06	7.7E-05	1.2E-04
toluene	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA
4,4-ddt	1.2E-09	1.5E-09	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA
dieldrin	3.7E-12	4.8E-12	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND
nitrate	NA	NA	NA	NA	ND	ND
fluoride	NA	NA	NA	NA	ND	ND
chloride	NA	NA	NA	NA	NA	NA
TOTAL:	1.9E-04	1.2E-04	1.2E+01	9.8E+00	6.2E-03	1.6E-02

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–9a
ILCRs FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.1E−13	1.3E−12	4.8E−12	6.7E−12	4.0E−07	3.5E−06	4.9E−06	9.3E−08	NA	6.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.7E−11	2.1E−12	3.8E−14	1.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.5E−09	5.5E−11	4.0E−15	3.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.9E−10	1.1E−11	2.1E−15	1.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+1d}	8.7E−09	2.6E−09	2.9E−10	2.1E−09	NA	NA	NA	NA	NA	NA	1.9E−05	3.5E−06	1.7E−07	1.2E−06	4.3E−07	NA
Ra_{228+1d}	8.8E−10	8.0E−10	2.2E−11	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	9.2E−13	1.2E−13	2.5E−14	3.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.6E−12	9.2E−12	1.7E−12	3.4E−11	1.4E−05	6.1E−06	1.2E−04	3.9E−07	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	3.6E−12	3.9E−12	6.2E−12	2.9E−11	4.4E−06	3.4E−05	1.6E−04	2.0E−08	NA	8.7E−11	NA	NA	NA	NA	NA	NA
Th_{228+7d}	1.4E−08	6.0E−11	3.7E−14	1.2E−13	5.0E−09	5.5E−10	1.9E−09	4.1E−07	NA	4.0E−04	NA	NA	NA	NA	NA	NA
Th_{230}	4.7E−07	1.4E−09	3.4E−12	1.1E−11	3.9E−09	4.3E−10	1.4E−09	3.2E−07	NA	1.2E−08	1.5E−06	2.3E−07	1.2E−10	4.1E−10	NA	NA
Th_{232}	1.3E−08	3.5E−11	8.9E−14	3.0E−13	1.0E−09	1.1E−10	3.8E−10	8.5E−08	NA	1.7E−09	NA	NA	NA	NA	NA	NA
U_{234}	2.5E−07	9.7E−10	2.3E−11	2.7E−10	5.9E−07	7.9E−08	9.5E−07	1.0E−06	NA	1.8E−08	2.0E−06	3.0E−07	4.4E−09	5.5E−08	NA	NA
$U_{235/236}$	1.5E−08	6.3E−11	1.5E−12	1.8E−11	1.5E−07	2.0E−08	2.3E−07	2.5E−07	NA	3.6E−05	NA	NA	NA	NA	NA	NA
U_{238+2d}	4.2E−07	1.5E−09	3.4E−11	4.1E−10	1.5E−06	2.0E−07	2.4E−06	2.6E−06	NA	3.2E−05	3.3E−06	5.0E−07	7.5E−09	9.3E−08	NA	NA
Rn_{222+4d}	4.4E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	5.6E−06	7.4E−09	3.9E−10	3.0E−09	2.1E−05	4.4E−05	2.9E−04	5.2E−06		5.3E−04	2.6E−05	4.6E−06	1.8E−07	1.4E−06	4.3E−07	
Chemicals																
arsenic	1.1E−09	1.1E−09	8.7E−10	1.0E−10	NA	NA	NA	NA	NA	NA	1.3E−03	2.9E−04	1.2E−04	1.4E−05	ND	4.0E−06
beryllium	6.5E−11	2.7E−10	1.3E−10	4.6E−13	3.2E−06	6.2E−06	2.2E−08	1.5E−05	1.5E−05	NA	1.4E−03	2.7E−04	4.6E−05	1.7E−07	ND	3.9E−04
cadmium	2.0E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
chromium vi	6.0E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	1.4E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
benzene	2.1E−18	2.4E−17	9.4E−21	1.2E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.8E−15	1.1E−15	2.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.2E−14	2.4E−16	3.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.2E−17	2.0E−17	4.4E−21	6.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−16	3.7E−15	7.2E−20	1.4E−19	9.5E−08	2.6E−12	5.2E−12	1.1E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	7.1E−16	4.7E−18	6.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	8.2E−14	4.0E−18	5.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E−11	1.0E−08	7.5E−11	9.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.8E−10	7.7E−09	6.1E−12	7.8E−12	NA	NA	NA	NA	NA	NA	2.7E−06	1.1E−06	4.8E−10	6.2E−10	5.5E−06	5.2E−07
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.9E−13	2.4E−13	3.0E−13	3.8E−13	4.6E−08	1.1E−07	1.4E−07	1.5E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.3E−12	1.7E−11	6.1E−11	7.8E−11	1.4E−06	1.2E−05	1.5E−05	8.5E−07	8.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.8E−13	2.1E−12	7.8E−12	9.9E−12	2.0E−07	1.8E−06	2.2E−06	1.2E−07	1.2E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E−13	9.1E−13	1.9E−11	2.4E−11	3.7E−08	3.1E−06	3.9E−06	6.0E−08	6.0E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	1.8E−15	1.5E−14	1.9E−14	2.4E−14	3.6E−09	8.7E−09	1.1E−08	1.2E−09	1.2E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.5E−13	5.7E−12	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.1E−13	3.1E−12	3.2E−11	4.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	9.3E−11	5.4E−10	6.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	6.6E−13	7.3E−11	9.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	5.8E−15	8.0E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.4E−15	2.1E−15	2.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.5E−16	9.7E−16	9.0E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.8E−15	1.9E−14	1.9E−15	2.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.3E−15	2.0E−14	1.5E−11	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E−15	1.6E−14	1.9E−11	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	7.8E−09	1.9E−08	2.0E−09	1.3E−09	5.0E−06	2.3E−05	2.1E−05	1.6E−05	1.6E−05		2.7E−03	5.6E−04	1.6E−04	1.4E−05	6.8E−06	4.0E−04
Sum Chem (BaP for PAHs):	7.8E−09	2.0E−08	2.4E−09	1.9E−09	8.2E−06	9.4E−05	1.1E−04	1.8E−05	1.8E−05		2.7E−03	5.6E−04	1.6E−04	1.4E−05	6.8E−06	4.0E−04
TOTAL ALL (TEF Approach):	5.6E−06	2.7E−08	2.3E−09	4.4E−09	2.6E−05	6.7E−05	3.1E−04	2.1E−05	1.6E−05	5.3E−04	2.7E−03	5.6E−04	1.6E−04	1.6E−05	7.3E−06	4.0E−04
TOTAL ALL (BaP Approach):	5.6E−06	2.7E−08	2.8E−09	5.0E−09	2.9E−05	1.4E−04	4.0E−04	2.3E−05	1.8E−05	5.3E−04	2.7E−03	5.6E−04	1.6E−04	1.6E−05	7.3E−06	4.0E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII–9b
ILCRs FOR RME OFF–PROPERTY FARMER
NORTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	4.0E−14	4.7E−13	1.7E−12	2.4E−12	4.6E−07	4.0E−06	5.5E−06	1.1E−07	NA	7.1E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.9E−11	1.1E−12	1.9E−14	7.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	5.9E−10	2.1E−11	1.5E−15	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.2E−10	4.6E−12	8.5E−16	6.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	3.0E−09	9.0E−10	1.0E−10	7.3E−10	NA	NA	NA	NA	NA	NA	8.8E−06	1.6E−06	7.6E−08	5.5E−07	2.0E−07	NA
Ra_{228+1d}	8.8E−11	8.0E−11	2.2E−12	1.6E−11	NA	NA	NA	NA	NA	NA	1.9E−05	2.9E−06	5.2E−08	3.9E−07	ND	NA
Ru_{106}	9.2E−13	1.2E−13	2.5E−14	3.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.9E−13	1.7E−12	3.0E−13	6.1E−12	5.8E−06	2.5E−06	5.0E−05	1.6E−07	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	2.5E−13	2.7E−13	4.4E−13	2.1E−12	1.6E−06	1.3E−05	5.9E−05	7.5E−09	NA	3.2E−11	NA	NA	NA	NA	NA	NA
Th_{228+7d}	3.3E−09	1.5E−11	9.1E−15	3.1E−14	3.6E−09	3.9E−10	1.3E−09	3.0E−07	NA	2.8E−04	4.0E−06	5.9E−07	2.4E−10	8.4E−10	NA	NA
Th_{230}	2.8E−08	7.9E−11	2.0E−13	6.7E−13	1.8E−09	2.0E−10	6.5E−10	1.4E−07	NA	5.7E−09	8.3E−07	1.3E−07	6.6E−11	2.3E−10	NA	NA
Th_{232}	1.8E−09	4.9E−12	1.3E−14	4.2E−14	NA	NA	NA	NA	NA	NA	2.8E−07	4.3E−08	2.3E−11	7.7E−11	NA	NA
U_{234}	4.5E−08	1.8E−10	4.1E−12	5.0E−11	1.6E−07	2.1E−08	2.5E−07	2.7E−07	NA	4.7E−09	2.7E−06	4.1E−07	6.0E−09	7.5E−08	NA	NA
$U_{235/236}$	3.8E−09	1.5E−11	3.6E−13	4.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.0E−07	3.5E−10	8.2E−12	9.9E−11	3.0E−07	4.0E−08	4.8E−07	5.2E−07	NA	6.3E−06	5.2E−06	7.9E−07	1.2E−08	1.5E−07	NA	NA
Rn_{222+4d}	2.1E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.3E−06	1.7E−09	1.2E−10	9.1E−10	8.3E−06	1.9E−05	1.2E−04	1.5E−06		3.6E−04	4.1E−05	6.4E−06	1.5E−07	1.2E−06	2.0E−07	
Chemicals																
arsenic	4.4E−10	4.4E−10	3.6E−10	4.3E−11	NA	NA	NA	NA	NA	NA	7.5E−03	1.6E−03	6.6E−04	8.0E−05	ND	2.3E−05
beryllium	2.4E−11	9.9E−11	4.7E−11	1.7E−13	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06	NA	NA	NA	NA	NA	NA	NA
cadmium	9.4E−11	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
chromium vi	2.3E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
nickel	6.0E−11	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.7E−18	1.9E−17	7.7E−21	9.9E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.1E−15	5.6E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.7E−15	5.2E−17	6.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E−17	1.4E−17	3.1E−21	4.2E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E−17	1.4E−15	2.6E−20	5.4E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	8.3E−16	5.5E−18	7.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.3E−14	3.1E−18	4.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.6E−10	5.7E−08	4.2E−10	5.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.6E−09	4.2E−08	3.4E−11	4.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.4E−13	1.1E−13	1.4E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E−12	8.9E−12	3.1E−11	4.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E−13	1.1E−12	4.1E−12	5.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.0E−14	4.6E−13	9.6E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	9.9E−16	8.0E−15	1.0E−14	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.6E−13	2.8E−12	5.4E−11	6.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.1E−13	1.6E−12	1.7E−11	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.9E−11	2.3E−10	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.6E−13	6.2E−11	7.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.2E−15	5.9E−14	7.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	7.3E−16	1.1E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.5E−16	9.7E−16	9.0E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.9E−15	1.3E−14	1.2E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.6E−15	2.1E−14	1.6E−11	2.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.1E−15	1.3E−14	1.5E−11	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.7E−09	1.0E−07	1.3E−09	1.2E−09	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06		7.5E−03	1.6E−03	6.6E−04	8.0E−05	0.0E+00	2.3E−05
Sum Chem (BaP for PAHs):	4.7E−09	1.0E−07	1.5E−09	1.5E−09	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06		7.5E−03	1.6E−03	6.6E−04	8.0E−05	0.0E+00	2.3E−05
TOTAL ALL (TEF Approach):	2.3E−06	1.0E−07	1.4E−09	2.1E−09	1.0E−05	2.2E−05	1.2E−04	9.4E−06	7.8E−06	3.6E−04	7.5E−03	1.6E−03	6.6E−04	8.1E−05	2.0E−07	2.3E−05
TOTAL ALL (BaP Approach):	2.3E−06	1.0E−07	1.7E−09	2.4E−09	1.0E−05	2.2E−05	1.2E−04	9.4E−06	7.8E−06	3.6E−04	7.5E−03	1.6E−03	6.6E−04	8.1E−05	2.0E−07	2.3E−05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–9c
ILCRs FOR RME OFF–PROPERTY FARMER
SOUTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.1E−14	3.7E−13	1.3E−12	1.8E−12	3.2E−07	2.8E−06	3.9E−06	7.4E−08	NA	5.0E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.6E−11	9.3E−13	1.7E−14	6.1E−15	NA	NA	NA	NA	NA	NA	2.7E−05	4.9E−06	5.1E−08	1.9E−08	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	8.1E−10	2.9E−11	2.1E−15	1.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.1E−10	4.1E−12	7.6E−16	6.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.7E−09	5.0E−10	5.6E−11	4.0E−10	NA	NA	NA	NA	NA	NA	2.1E−05	3.7E−06	1.8E−07	1.3E−06	4.5E−07	NA
Ra_{228+1d}	1.7E−10	1.5E−10	4.3E−12	3.1E−11	1.1E−07	6.8E−08	4.9E−07	5.3E−07	NA	1.4E−04	2.2E−05	3.2E−06	5.9E−08	4.4E−07	ND	NA
Ru_{106}	4.8E−13	6.5E−14	1.3E−14	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.8E−13	1.6E−12	3.0E−13	6.0E−12	1.1E−05	4.7E−06	9.4E−05	3.0E−07	NA	ND	1.0E−05	2.6E−06	2.7E−07	5.5E−06	NA	NA
Tc_{99}	3.1E−13	3.4E−13	5.4E−13	2.5E−12	NA	NA	NA	NA	NA	NA	1.6E−06	2.6E−07	2.7E−07	1.3E−06	NA	NA
Th_{228+3d}	3.4E−09	1.5E−11	9.3E−15	3.2E−14	3.8E−09	4.2E−10	1.4E−09	3.2E−07	NA	3.0E−04	2.3E−05	3.4E−06	1.4E−09	4.9E−09	NA	NA
Th_{230}	6.7E−08	1.9E−10	4.9E−13	1.6E−12	1.4E−09	1.6E−10	5.2E−10	1.1E−07	NA	4.5E−09	1.4E−06	2.1E−07	1.1E−10	3.7E−10	NA	NA
Th_{232}	2.6E−09	7.1E−12	1.8E−14	6.1E−14	NA	NA	NA	NA	NA	NA	1.6E−06	2.4E−07	1.3E−10	4.3E−10	NA	NA
U_{234}	6.3E−08	2.5E−10	5.8E−12	7.0E−11	1.2E−07	1.6E−08	1.9E−07	2.0E−07	NA	3.6E−09	6.6E−05	1.0E−05	1.5E−07	1.9E−06	NA	NA
$U_{235/236}$	4.6E−09	1.9E−11	4.4E−13	5.3E−12	NA	NA	NA	NA	NA	NA	1.5E−06	2.2E−07	3.3E−09	4.1E−08	NA	NA
U_{238+2d}	1.3E−07	4.4E−10	1.0E−11	1.2E−10	1.9E−07	2.6E−08	3.1E−07	3.3E−07	NA	4.0E−06	1.4E−04	2.1E−05	3.1E−07	3.8E−06	NA	NA
Rn_{222+4d}	5.7E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.4E−07	1.6E−09	7.9E−11	6.4E−10	1.2E−05	7.6E−06	9.9E−05	1.9E−06		5.0E−04	3.1E−04	5.0E−05	1.3E−06	1.4E−05	4.5E−07	
Chemicals																
arsenic	3.3E−10	3.3E−10	2.7E−10	3.2E−11	NA	NA	NA	NA	NA	NA	1.5E−02	3.3E−03	1.3E−03	1.6E−04	ND	4.5E−05
beryllium	2.1E−11	8.6E−11	4.1E−11	1.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.3E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
chromium vi	1.7E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	3.8E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
benzene	4.9E−19	5.6E−18	2.2E−21	2.9E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.6E−15	2.9E−16	6.5E−16	NA	NA	NA	NA	NA	NA	3.8E−07	4.4E−08	2.6E−09	6.7E−09	ND	1.0E−06
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.0E−15	3.4E−17	4.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.9E−18	4.9E−18	1.1E−21	1.5E−21	NA	NA	NA	NA	NA	NA	4.8E−06	1.0E−06	1.2E−10	1.7E−10	2.4E−04	4.7E−07
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E−03	3.3E−04	5.9E−08	8.3E−08	2.0E−03	3.0E−04
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.7E−04	2.3E−04	4.8E−08	6.3E−08	2.9E−03	4.3E−05
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.5E−17	6.8E−16	1.3E−20	2.7E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	3.0E−16	2.0E−18	2.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.9E−14	9.2E−19	1.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.9E−11	4.3E−09	3.1E−11	4.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E−10	3.2E−09	2.5E−12	3.2E−12	NA	NA	NA	NA	NA	NA	1.0E−05	4.1E−06	1.8E−09	2.3E−09	2.1E−05	2.0E−06
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.9E−14	5.7E−14	7.2E−14	9.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.5E−13	4.3E−12	1.5E−11	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.8E−14	5.3E−13	1.9E−12	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.5E−14	1.9E−13	4.0E−12	5.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.7E−16	3.8E−15	5.0E−15	6.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.7E−13	1.3E−12	2.5E−11	3.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	9.6E−14	7.2E−13	7.6E−12	9.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.8E−11	1.7E−10	2.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.6E−13	1.8E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.8E−15	2.5E−14	3.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	7.2E−16	1.1E−15	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.2E−17	4.6E−16	4.3E−16	5.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E−15	9.9E−15	9.7E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.3E−15	7.5E−15	5.8E−12	8.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.3E−16	3.7E−15	4.4E−12	6.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.2E−09	7.9E−09	5.9E−10	3.9E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.7E−02	3.8E−03	1.3E−03	1.6E−04	5.2E−03	3.9E−04
Sum Chem (BaP for PAHs):	2.2E−09	7.9E−09	6.9E−10	5.2E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.7E−02	3.8E−03	1.3E−03	1.6E−04	5.2E−03	3.9E−04
TOTAL ALL (TEF Approach):	8.4E−07	9.5E−09	6.7E−10	1.0E−09	1.2E−05	7.6E−06	9.9E−05	1.9E−06	0.0E+00	5.0E−04	1.8E−02	3.9E−03	1.3E−03	1.7E−04	5.2E−03	3.9E−04
TOTAL ALL (BaP Approach):	8.4E−07	9.5E−09	7.7E−10	1.2E−09	1.2E−05	7.6E−06	9.9E−05	1.9E−06	0.0E+00	5.0E−04	1.8E−02	3.9E−03	1.3E−03	1.7E−04	5.2E−03	3.9E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–9d
ILCRs FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.9E−14	3.4E−13	1.2E−12	1.7E−12	4.0E−07	3.5E−06	4.9E−06	9.3E−08	NA	6.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.3E−11	7.6E−13	1.4E−14	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	5.0E−10	1.8E−11	1.3E−15	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.5E−11	2.9E−12	5.4E−16	4.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.4E−09	4.2E−10	4.8E−11	3.4E−10	NA	NA	NA	NA	NA	NA	1.4E−05	2.5E−06	1.2E−07	8.5E−07	3.0E−07	NA
Ra_{228+1d}	6.6E−11	6.0E−11	1.7E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	6.1E−13	8.2E−14	1.6E−14	2.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.7E−13	1.0E−12	1.8E−13	3.7E−12	2.1E−05	9.0E−06	1.8E−04	5.7E−07	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	1.7E−13	1.9E−13	3.0E−13	1.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	2.5E−09	1.1E−11	6.9E−15	2.3E−14	4.4E−09	4.8E−10	1.6E−09	3.6E−07	NA	3.4E−04	NA	NA	NA	NA	NA	NA
Th_{230}	2.2E−08	6.2E−11	1.6E−13	5.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232}	1.4E−09	3.9E−12	1.0E−14	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.3E−08	1.3E−10	3.0E−12	3.6E−11	1.1E−07	1.4E−08	1.7E−07	1.8E−07	NA	3.2E−09	1.6E−06	2.5E−07	3.7E−09	4.6E−08	NA	NA
$U_{235/236}$	2.8E−09	1.1E−11	2.6E−13	3.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	7.8E−08	2.7E−10	6.3E−12	7.5E−11	2.6E−07	3.4E−08	4.1E−07	4.4E−07	NA	5.4E−06	2.5E−06	3.8E−07	5.6E−09	6.9E−08	NA	NA
Rn_{222+4d}	1.2E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.3E−06	1.0E−09	6.1E−11	4.8E−10	2.2E−05	1.2E−05	1.9E−04	1.7E−06		4.1E−04	1.8E−05	3.1E−06	1.3E−07	9.7E−07	3.0E−07	
Chemicals																
arsenic	4.2E−10	4.2E−10	3.4E−10	4.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.8E−11	7.3E−11	3.5E−11	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	6.5E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	4.4E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	4.9E−19	5.6E−18	2.2E−21	2.9E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.4E−15	2.6E−16	5.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.9E−15	2.1E−17	2.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.8E−18	4.2E−18	9.5E−22	1.3E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−17	4.8E−16	9.4E−21	1.9E−20	NA	NA	NA	NA	NA	NA	2.1E−07	2.9E−08	1.7E−13	3.9E−13	1.6E−07	7.9E−09
n−nitrosodiphenylamine	ND	3.8E−16	2.5E−18	3.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.9E−14	9.0E−19	1.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.3E−11	2.1E−08	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.4E−10	1.5E−08	1.2E−11	1.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.1E−14	4.2E−14	5.4E−14	6.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.0E−13	3.1E−12	1.1E−11	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.3E−14	4.1E−13	1.5E−12	1.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E−14	1.6E−13	3.3E−12	4.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.6E−16	2.9E−15	3.8E−15	4.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.3E−13	9.7E−13	1.9E−11	2.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	7.5E−14	5.6E−13	5.9E−12	7.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.7E−11	9.6E−11	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.6E−13	1.8E−11	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.5E−15	2.0E−14	2.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.7E−16	5.4E−16	6.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.0E−17	4.5E−16	4.2E−16	5.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.9E−16	6.1E−15	6.0E−16	7.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.5E−15	8.6E−15	6.6E−12	9.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.2E−16	3.7E−15	4.3E−12	6.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.8E−09	3.6E−08	7.0E−10	4.6E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		2.1E−07	2.9E−08	1.7E−13	3.9E−13	1.6E−07	7.9E−09
Sum Chem (BaP for PAHs):	2.8E−09	3.6E−08	7.9E−10	5.7E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		2.1E−07	2.9E−08	1.7E−13	3.9E−13	1.6E−07	7.9E−09
TOTAL ALL (TEF Approach):	1.3E−06	3.7E−08	7.6E−10	9.4E−10	2.2E−05	1.2E−05	1.9E−04	1.7E−06	0.0E+00	4.1E−04	1.8E−05	3.1E−06	1.3E−07	9.7E−07	4.6E−07	7.9E−09
TOTAL ALL (BaP Approach):	1.3E−06	3.7E−08	8.5E−10	1.0E−09	2.2E−05	1.2E−05	1.9E−04	1.7E−06	0.0E+00	4.1E−04	1.8E−05	3.1E−06	1.3E−07	9.7E−07	4.6E−07	7.9E−09

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–9e
ILCRs FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	7.3E−14	8.7E−13	3.1E−12	4.3E−12	4.7E−07	4.0E−06	5.6E−06	1.1E−07	NA	7.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.3E−11	1.9E−12	3.4E−14	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.1E−09	3.9E−11	2.8E−15	2.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.8E−10	7.1E−12	1.3E−15	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.0E−08	3.0E−09	3.4E−10	2.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	2.9E−10	2.6E−10	7.4E−12	5.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	9.7E−13	1.3E−13	2.6E−14	3.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	6.9E−13	4.0E−12	7.3E−13	1.5E−11	3.0E−05	1.3E−05	2.6E−04	8.3E−07	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	6.5E−13	7.2E−13	1.1E−12	5.4E−12	2.2E−06	1.7E−05	8.2E−05	1.0E−08	NA	4.5E−11	NA	NA	NA	NA	NA	NA
Th_{228+7d}	6.0E−09	2.6E−11	1.6E−14	5.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.2E−07	3.6E−10	9.1E−13	3.0E−12	1.3E−09	1.4E−10	4.6E−10	1.0E−07	NA	4.0E−09	NA	NA	NA	NA	NA	NA
Th_{232}	4.5E−09	1.3E−11	3.2E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	9.9E−08	3.9E−10	9.1E−12	1.1E−10	2.7E−07	3.6E−08	4.4E−07	4.7E−07	NA	8.4E−09	NA	NA	NA	NA	NA	NA
$U_{235/236}$	7.8E−09	3.2E−11	7.5E−13	8.9E−12	2.9E−08	3.8E−09	4.6E−08	4.9E−08	NA	7.0E−06	NA	NA	NA	NA	NA	NA
U_{238+2d}	2.1E−07	7.3E−10	1.7E−11	2.0E−10	4.9E−07	6.4E−08	7.7E−07	8.4E−07	NA	1.0E−05	NA	NA	NA	NA	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.6E−07	4.9E−09	3.8E−10	2.8E−09	3.3E−05	3.4E−05	3.5E−04	2.4E−06		9.0E−05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Chemicals																
arsenic	6.6E−10	6.7E−10	5.4E−10	6.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	4.7E−11	1.9E−10	9.1E−11	3.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.3E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.1E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	9.3E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.0E−18	3.4E−17	1.4E−20	1.8E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	6.2E−15	1.1E−15	2.5E−15	9.7E−09	4.1E−09	9.3E−09	2.6E−09	3.7E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.4E−14	1.6E−16	2.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.3E−17	2.6E−17	5.9E−21	8.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.7E−16	4.5E−15	8.8E−20	1.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	8.3E−16	5.5E−18	7.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.2E−13	5.6E−18	7.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.4E−11	1.6E−08	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.3E−10	1.2E−08	9.2E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.1E−13	2.5E−13	3.3E−13	4.1E−13	8.9E−08	2.2E−07	2.8E−07	3.0E−08	3.0E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.6E−12	2.0E−11	7.1E−11	9.0E−11	3.3E−06	2.8E−05	3.5E−05	2.0E−06	2.0E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.9E−13	2.2E−12	8.0E−12	1.0E−11	4.0E−07	3.5E−06	4.5E−06	2.4E−07	2.4E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−13	1.0E−12	2.2E−11	2.7E−11	8.8E−08	7.3E−06	9.2E−06	1.4E−07	1.4E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.8E−15	1.5E−14	1.9E−14	2.4E−14	8.6E−09	2.1E−08	2.7E−08	2.9E−09	2.9E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.7E−13	6.6E−12	1.3E−10	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.2E−13	3.1E−12	3.3E−11	4.2E−11	2.9E−07	1.0E−05	1.3E−05	3.3E−07	3.3E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.1E−10	6.5E−10	8.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	9.7E−13	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	7.3E−15	1.0E−13	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.3E−15	1.9E−15	2.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.5E−16	9.7E−16	9.0E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.6E−15	1.8E−14	1.7E−15	2.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.1E−15	2.4E−14	1.9E−11	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.9E−15	2.3E−14	2.7E−11	3.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.5E−09	2.9E−08	1.8E−09	1.6E−09	4.2E−06	4.9E−05	6.3E−05	2.7E−06	2.7E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	5.5E−09	2.9E−08	2.4E−09	2.3E−09	1.2E−05	2.4E−04	3.0E−04	8.7E−06	8.7E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	4.7E−07	3.4E−08	2.2E−09	4.4E−09	3.8E−05	8.4E−05	4.1E−04	5.1E−06	2.7E−06	9.0E−05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	4.7E−07	3.4E−08	2.7E−09	5.1E−09	4.5E−05	2.7E−04	6.5E−04	1.1E−05	8.7E−06	9.0E−05	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–9f
ILCRs FOR RME OFF–PROPERTY FARMER
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.5E−14	4.2E−13	1.5E−12	2.1E−12	3.8E−07	3.2E−06	4.5E−06	8.6E−08	NA	5.8E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.8E−11	1.0E−12	1.8E−14	6.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	9.5E−10	3.4E−11	2.5E−15	2.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.2E−10	4.7E−12	8.9E−16	7.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.9E−09	5.6E−10	6.3E−11	4.5E−10	NA	NA	NA	NA	NA	NA	7.1E−06	1.3E−06	6.1E−08	4.4E−07	1.6E−07	NA
Ra_{228+1d}	1.8E−10	1.6E−10	4.5E−12	3.3E−11	1.1E−07	6.8E−08	4.9E−07	5.3E−07	NA	1.4E−04	NA	NA	NA	NA	NA	NA
Ru_{106}	5.1E−13	6.9E−14	1.4E−14	1.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.4E−13	2.0E−12	3.7E−13	7.3E−12	1.3E−05	5.5E−06	1.1E−04	3.5E−07	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	5.4E−13	5.9E−13	9.5E−13	4.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	4.0E−09	1.8E−11	1.1E−14	3.7E−14	3.8E−09	4.2E−10	1.4E−09	3.2E−07	NA	3.0E−04	1.6E−06	2.4E−07	9.6E−11	3.4E−10	NA	NA
Th_{230}	6.7E−08	1.9E−10	4.9E−13	1.6E−12	1.4E−09	1.6E−10	5.2E−10	1.1E−07	NA	4.5E−09	4.5E−07	6.8E−08	3.5E−11	1.2E−10	NA	NA
Th_{232}	3.1E−09	8.4E−12	2.1E−14	7.1E−14	NA	NA	NA	NA	NA	NA	1.8E−07	2.7E−08	1.4E−11	4.8E−11	NA	NA
U_{234}	7.8E−08	3.1E−10	7.2E−12	8.6E−11	1.7E−07	2.3E−08	2.7E−07	3.0E−07	NA	5.2E−09	4.7E−07	7.2E−08	1.1E−09	1.3E−08	NA	NA
U_{235236}	5.8E−09	2.4E−11	5.5E−13	6.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.6E−07	5.4E−10	1.3E−11	1.5E−10	2.6E−07	3.4E−08	4.1E−07	4.4E−07	NA	5.4E−06	9.6E−07	1.5E−07	2.2E−09	2.7E−08	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.2E−07	1.9E−09	9.1E−11	7.4E−10	1.4E−05	8.8E−06	1.1E−04	2.1E−06		5.1E−04	1.1E−05	1.8E−06	6.4E−08	4.8E−07	1.6E−07	
Chemicals																
arsenic	5.1E−10	5.1E−10	4.1E−10	4.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.9E−11	1.2E−10	5.7E−11	2.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	8.2E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
chromium vi	2.6E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	6.0E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
benzene	6.4E−19	7.3E−18	2.9E−21	3.8E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.0E−15	3.7E−16	8.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	5.0E−15	5.5E−17	7.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.0E−17	6.5E−18	1.5E−21	2.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.7E−17	1.0E−15	2.0E−20	4.0E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	3.2E−16	2.1E−18	2.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	2.5E−14	1.2E−18	1.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.1E−11	4.6E−09	3.3E−11	4.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E−10	3.3E−09	2.6E−12	3.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	9.2E−14	7.6E−14	9.7E−14	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	7.1E−13	5.5E−12	1.9E−11	2.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.7E−14	6.8E−13	2.5E−12	3.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.5E−14	2.7E−13	5.6E−12	7.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	5.9E−16	4.8E−15	6.3E−15	8.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.3E−13	1.8E−12	3.4E−11	4.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.3E−13	9.9E−13	1.0E−11	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.4E−11	2.0E−10	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.1E−13	2.3E−11	2.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.2E−15	3.1E−14	3.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	8.5E−16	1.3E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.9E−17	5.1E−16	4.7E−16	6.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.7E−15	1.1E−14	1.1E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.4E−15	8.0E−15	6.2E−12	8.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.4E−16	4.9E−15	5.8E−12	8.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.4E−09	8.5E−09	8.1E−10	4.9E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	3.4E−09	8.5E−09	9.6E−10	6.7E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	3.2E−07	1.0E−08	9.0E−10	1.2E−09	1.4E−05	8.8E−06	1.1E−04	2.1E−06	0.0E+00	5.1E−04	1.1E−05	1.8E−06	6.4E−08	4.8E−07	1.6E−07	0.0E+00
TOTAL ALL (BaP Approach):	3.2E−07	1.0E−08	1.0E−09	1.4E−09	1.4E−05	8.8E−06	1.1E−04	2.1E−06	0.0E+00	5.1E−04	1.1E−05	1.8E−06	6.4E−08	4.8E−07	1.6E−07	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10a
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	3.3E–09	2.4E–14	3.0E–14	1.8E–01	1.5E–06	1.9E–06	5.2E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
antimony	ND	5.6E–06	4.1E–06	1.6E–06	7.8E–02	7.8E–02	3.1E–02	1.8E–02	3.8E–02	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	2.1E–06	1.7E–06	2.0E–07	NA	NA	NA	NA	NA	NA	2.5E+00	5.5E–01	2.2E–01	2.7E–02	ND	7.6E–03
barium	6.4E–06	2.8E–07	4.8E–08	4.5E–07	1.8E–02	4.2E–03	4.0E–02	8.5E–03	3.0E–03	NA	6.2E–01	3.8E–01	3.2E–02	3.0E–01	ND	2.0E–03
beryllium	ND	1.2E–08	5.9E–09	2.1E–11	1.5E–04	2.9E–04	1.0E–06	6.9E–04	2.2E–02	NA	6.4E–02	1.3E–02	2.2E–03	7.8E–06	ND	1.8E–02
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.8E–06	1.1E–06	7.9E–06	1.0E–01	3.0E–02	2.2E–01	4.7E–03	3.0E–02	NA	3.5E+00	1.2E+01	1.7E+00	1.3E+01	ND	2.0E–01
chromium vi	ND	3.2E–07	5.5E–07	6.0E–07	7.6E–03	2.3E–02	2.5E–02	1.2E–02	8.3E–03	NA	4.2E+01	1.3E+01	6.7E+00	7.4E+00	ND	5.4E–01
cobalt	2.4E–04	1.4E–08	9.7E–08	3.9E–08	9.0E–04	1.1E–02	4.4E–03	8.8E–04	6.3E–04	NA	1.4E–01	4.4E–02	1.2E–01	5.0E–02	ND	3.6E–04
copper	ND	5.6E–07	1.2E–06	7.5E–07	2.9E–02	6.8E–02	4.1E–02	7.9E–04	ND	NA	5.4E–01	1.1E+00	1.2E+00	7.3E–01	ND	ND
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	2.8E–07	2.5E–07	8.0E–07	1.9E–01	2.5E–01	7.9E–01	2.3E–03	1.5E–02	NA	2.3E+00	6.9E–01	3.5E–01	1.1E+00	ND	1.3E–01
manganese	5.0E–04	1.2E–06	2.8E–07	1.0E–06	5.6E–01	1.7E–01	5.9E–01	7.7E–02	8.3E–01	NA	2.4E+00	1.6E+00	1.9E–01	6.8E–01	ND	2.3E–01
mercury	3.3E–08	9.7E–08	7.8E–06	5.6E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.0E–07	5.1E–07	5.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	4.7E–07	4.5E–07	3.0E–07	2.5E–02	2.6E–02	1.7E–02	2.9E–03	4.7E–04	NA	5.4E+00	9.0E+00	3.9E+00	2.6E+00	ND	1.5E–02
selenium	ND	2.4E–08	6.5E–08	6.9E–08	9.8E–04	3.0E–03	3.2E–03	2.7E–04	1.1E–04	NA	3.1E–01	2.5E–01	2.7E–01	2.9E–01	ND	1.1E–03
silver	ND	4.1E–07	6.3E–07	1.7E–05	1.3E–02	2.3E–02	6.1E–01	8.9E–04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.1E–07	3.7E–06	7.4E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	2.6E–05	6.1E–07	7.3E–06	3.2E–02	4.3E–03	5.2E–02	5.6E–02	3.6E–01	NA	5.9E–02	9.0E–03	1.3E–04	1.7E–03	ND	3.4E–03
vanadium	ND	2.2E–07	1.8E–07	5.6E–09	5.9E–03	1.1E–02	3.5E–04	1.4E–02	8.7E–03	NA	1.4E+00	3.4E–01	8.0E–02	2.6E–03	ND	8.1E–02
zinc	ND	4.3E–06	1.0E–04	4.1E–05	4.6E–01	1.1E+01	4.5E+00	3.6E–03	4.5E–03	NA	1.1E–01	3.5E+00	4.2E+01	1.7E+01	ND	7.4E–04
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2E–03	4.6E–04	1.2E–10	2.6E–10	ND	1.5E–05
bis(2–ethylhexyl)phthalate	ND	2.1E–11	3.8E–12	8.4E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E–03	3.9E–04	1.0E–07	1.3E–07	1.8E–01	3.0E–04
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	3.2E–13	7.3E–17	9.9E–17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.7E–05	2.1E–05	2.7E–05	7.4E–06	1.6E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.8E–14	8.1E–12	1.6E–16	3.2E–16	2.1E–04	5.6E–09	1.1E–08	2.4E–07	2.3E–06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.2E–05	3.5E–05	4.4E–05	9.0E–06	2.0E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.0E–05	1.4E–07	1.8E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.1E–03	1.9E–04	1.4E–07	2.0E–07	7.2E–03	4.4E–04
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	3.4E–11	4.7E–10	6.0E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.4E–11	2.3E–12	3.0E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.9E–03	4.3E–04	ND	ND	ND	8.4E–06
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E–01	4.0E–02	ND	ND	ND	7.7E–04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.4E–04	6.6E–05	1.3E–04	8.0E–05	1.7E+00	1.2E+01	6.9E+00	2.0E–01	1.3E+00		6.2E+01	4.2E+01	5.6E+01	4.2E+01	1.9E–01	1.2E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10b
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
NORTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	8.6E−10	6.2E−15	7.8E−15	1.8E−01	1.5E−06	1.9E−06	5.2E−05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	3.0E−06	2.2E−06	8.7E−07	NA	NA	NA	NA	NA	NA	3.0E+00	1.7E+00	6.4E−01	2.6E−01	ND	5.8E−02
arsenic	ND	8.4E−07	6.8E−07	8.1E−08	NA	NA	NA	NA	NA	NA	1.4E+01	3.1E+00	1.3E+00	1.5E−01	ND	4.3E−02
barium	2.4E−06	1.1E−07	1.9E−08	1.7E−07	1.0E−02	2.3E−03	2.2E−02	4.6E−03	1.6E−03	NA	3.2E−01	2.0E−01	1.7E−02	1.5E−01	ND	1.0E−03
beryllium	ND	4.6E−09	2.2E−09	7.9E−12	7.9E−05	1.5E−04	5.5E−07	3.6E−04	1.2E−02	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.8E−06	5.1E−07	3.7E−06	9.1E−02	2.7E−02	2.0E−01	4.2E−03	2.7E−02	NA	1.8E−01	6.3E−01	8.8E−02	6.4E−01	ND	1.0E−02
chromium vi	ND	1.2E−07	2.1E−07	2.3E−07	5.5E−03	1.7E−02	1.9E−02	8.5E−03	6.0E−03	NA	NA	NA	NA	NA	NA	NA
cobalt	9.9E−05	5.9E−09	4.1E−08	1.6E−08	6.9E−04	8.5E−03	3.4E−03	6.8E−04	4.8E−04	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.6E−07	3.5E−07	2.1E−07	5.0E−02	1.2E−01	7.1E−02	1.4E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	9.9E−08	8.8E−08	2.8E−07	3.3E−01	4.3E−01	1.4E+00	4.1E−03	2.6E−02	NA	1.6E−01	5.0E−02	2.5E−02	8.2E−02	ND	9.5E−03
manganese	1.9E−04	4.6E−07	1.1E−07	3.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	9.1E−09	2.7E−08	2.2E−06	1.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	7.8E−08	2.0E−07	2.0E−07	5.0E−02	1.9E−01	1.9E−01	5.8E−03	4.9E−03	NA	2.5E−01	1.2E−01	1.6E−01	1.6E−01	ND	1.9E−03
nickel	ND	2.1E−07	2.0E−07	1.3E−07	2.3E−02	2.3E−02	1.6E−02	2.7E−03	4.3E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.6E−08	4.3E−08	4.6E−08	5.7E−04	1.7E−03	1.8E−03	1.6E−04	6.3E−05	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.1E−07	3.2E−07	8.5E−06	NA	NA	NA	NA	NA	NA	1.6E−01	1.9E−01	1.5E−01	4.0E+00	ND	ND
thallium	ND	1.1E−07	1.9E−06	3.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	6.9E−06	1.6E−07	1.9E−06	6.2E−03	8.2E−04	9.8E−03	1.1E−02	6.8E−02	NA	1.4E−02	2.2E−03	3.3E−05	4.1E−04	ND	8.3E−04
vanadium	ND	9.5E−08	7.4E−08	2.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.6E−06	6.3E−05	2.5E−05	8.6E−02	2.1E+00	8.3E−01	6.6E−04	8.4E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.5E−04	1.2E−04	2.9E−11	6.6E−11	ND	3.8E−06
bis(2−ethylhexyl)phthalate	ND	1.1E−11	2.0E−12	4.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.3E−13	5.1E−17	7.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E−14	3.0E−12	5.8E−17	1.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.1E−04	8.0E−07	1.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.5E−11	3.5E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.6E−11	1.6E−12	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7E−03	2.6E−04	ND	ND	ND	4.9E−06
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.3E−01	6.4E−02	ND	ND	ND	1.2E−03
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.9E−04	1.3E−04	7.3E−05	4.3E−05	8.4E−01	2.9E+00	2.7E+00	4.4E−02	1.5E−01		1.9E+01	6.1E+00	2.3E+00	5.4E+00	0.0E+00	1.3E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10c
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
SOUTH FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	8.6E−10	6.2E−15	7.8E−15	NA	NA	NA	NA	NA	NA	7.5E−02	2.8E−02	1.2E−07	1.5E−07	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
antimony	ND	1.8E−06	1.3E−06	5.1E−07	NA	NA	NA	NA	NA	NA	2.1E+00	1.2E+00	4.5E−01	1.8E−01	ND	4.1E−02
arsenic	ND	6.4E−07	5.1E−07	6.2E−08	NA	NA	NA	NA	NA	NA	2.8E+01	6.2E+00	2.5E+00	3.0E−01	ND	8.6E−02
barium	2.0E−06	9.2E−08	1.5E−08	1.4E−07	NA	NA	NA	NA	NA	NA	1.2E−01	7.4E−02	6.2E−03	5.8E−02	ND	3.8E−04
beryllium	ND	4.0E−09	1.9E−09	6.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.0E−06	2.9E−07	2.1E−06	NA	NA	NA	NA	NA	NA	7.8E−01	2.8E+00	3.9E−01	2.8E+00	ND	4.5E−02
chromium vi	ND	9.0E−08	1.5E−07	1.7E−07	NA	NA	NA	NA	NA	NA	6.1E+00	1.8E+00	9.6E−01	1.1E+00	ND	7.8E−02
cobalt	7.1E−05	4.2E−09	2.9E−08	1.2E−08	NA	NA	NA	NA	NA	NA	2.0E−02	6.2E−03	1.8E−02	7.2E−03	ND	5.1E−05
copper	ND	1.5E−07	3.3E−07	2.0E−07	NA	NA	NA	NA	NA	NA	4.5E−02	9.0E−02	1.0E−01	6.0E−02	ND	ND
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	7.3E−08	6.4E−08	2.1E−07	NA	NA	NA	NA	NA	NA	1.6E−01	4.8E−02	2.5E−02	8.0E−02	ND	9.3E−03
manganese	1.5E−04	3.7E−07	8.5E−08	3.0E−07	NA	NA	NA	NA	NA	NA	6.7E−01	4.5E−01	5.3E−02	1.9E−01	ND	6.4E−02
mercury	9.1E−09	2.7E−08	2.2E−06	1.6E−08	NA	NA	NA	NA	NA	NA	1.4E−01	3.7E−02	1.7E+00	1.2E−02	ND	2.6E−03
molybdenum	ND	5.1E−08	1.3E−07	1.3E−07	NA	NA	NA	NA	NA	NA	1.9E−01	9.1E−02	1.2E−01	1.2E−01	ND	1.5E−03
nickel	ND	1.3E−07	1.3E−07	8.4E−08	NA	NA	NA	NA	NA	NA	4.0E−02	6.7E−02	2.9E−02	1.9E−02	ND	1.1E−04
selenium	ND	1.1E−08	3.1E−08	3.3E−08	NA	NA	NA	NA	NA	NA	1.1E−02	9.0E−03	9.7E−03	1.0E−02	ND	3.9E−05
silver	ND	1.3E−07	2.0E−07	5.4E−06	NA	NA	NA	NA	NA	NA	1.1E−01	1.3E−01	1.0E−01	2.7E+00	ND	ND
thallium	ND	5.6E−08	9.7E−07	1.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	8.3E−06	1.9E−07	2.3E−06	5.7E−03	7.6E−04	9.1E−03	9.9E−03	6.3E−02	NA	3.0E+00	4.6E−01	6.9E−03	8.5E−02	ND	1.7E−01
vanadium	ND	6.8E−08	5.3E−08	1.7E−09	NA	NA	NA	NA	NA	NA	1.2E−01	2.8E−02	6.5E−03	2.1E−04	ND	6.6E−03
zinc	ND	9.9E−07	2.4E−05	9.6E−06	NA	NA	NA	NA	NA	NA	8.9E−03	2.9E−01	3.5E+00	1.4E+00	ND	6.2E−05
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E−03	2.9E−04	7.4E−11	1.6E−10	ND	9.5E−06
bis(2−ethylhexyl)phthalate	ND	5.7E−12	1.0E−12	2.3E−12	NA	NA	NA	NA	NA	NA	1.4E−03	1.6E−04	9.3E−06	2.4E−05	ND	3.7E−03
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	8.0E−14	1.8E−17	2.4E−17	NA	NA	NA	NA	NA	NA	7.9E−02	1.6E−02	2.0E−06	2.8E−06	ND	7.7E−03
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	4.2E−02	ND
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.3E−01	6.0E−02	1.1E−05	1.5E−05	ND	5.5E−02
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E−02	2.6E−03	6.0E−07	7.9E−07	ND	6.1E−04
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−14	1.5E−12	2.9E−17	5.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	8.3E−06	6.0E−08	7.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	3.6E−03	ND
4,4−ddt	ND	1.1E−11	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.2E−11	1.2E−12	1.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.9E−02	1.5E−02	ND	ND	ND	2.9E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1E−01	3.1E−02	ND	ND	ND	5.9E−04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E−04	2.2E−05	3.1E−05	2.1E−05	5.7E−03	7.6E−04	9.1E−03	9.9E−03	6.3E−02		4.3E+01	1.4E+01	9.9E+00	9.1E+00	4.5E−02	5.8E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10d
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	5.4E−10	3.9E−15	4.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.6E−06	1.9E−06	7.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	8.0E−07	6.5E−07	7.8E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.7E−06	7.5E−08	1.3E−08	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.4E−09	1.6E−09	5.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.3E−06	3.5E−07	2.6E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.8E−08	1.5E−07	1.6E−07	NA	NA	NA	NA	NA	NA	1.1E−01	3.3E−02	1.7E−02	1.9E−02	ND	1.4E−03
cobalt	7.1E−05	4.2E−09	2.9E−08	1.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.0E−07	2.3E−07	1.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	6.7E−08	6.0E−08	1.9E−07	NA	NA	NA	NA	NA	NA	1.1E−01	3.2E−02	1.6E−02	5.2E−02	ND	6.1E−03
manganese	1.5E−04	3.7E−07	8.5E−08	3.0E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	6.3E−09	1.9E−08	1.5E−06	1.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	4.5E−08	1.2E−07	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.5E−07	1.4E−07	9.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.0E−08	2.7E−08	2.9E−08	NA	NA	NA	NA	NA	NA	6.6E−03	5.4E−03	5.8E−03	6.2E−03	ND	2.4E−05
silver	ND	1.5E−07	2.4E−07	6.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	6.9E−08	1.2E−06	2.4E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	5.1E−06	1.2E−07	1.4E−06	5.2E−03	7.0E−04	8.4E−03	9.0E−03	5.8E−02	NA	6.0E−02	9.2E−03	1.4E−04	1.7E−03	ND	3.5E−03
vanadium	ND	6.5E−08	5.1E−08	1.6E−09	NA	NA	NA	NA	NA	NA	1.5E−02	3.5E−03	8.4E−04	2.7E−05	ND	8.6E−04
zinc	ND	9.9E−07	2.4E−05	9.6E−06	NA	NA	NA	NA	NA	NA	1.7E−02	5.5E−01	6.5E+00	2.6E+00	ND	1.2E−04
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.1E−12	9.2E−13	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	6.9E−14	1.5E−17	2.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−14	1.1E−12	2.0E−17	4.1E−17	NA	NA	NA	NA	NA	NA	4.5E−04	6.4E−05	3.7E−10	8.5E−10	1.2E−04	1.7E−05
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.0E−05	2.9E−07	3.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	8.6E−12	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	7.6E−12	7.4E−13	9.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5E−02	1.1E−02	ND	ND	ND	2.2E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.4E−01	3.6E−02	ND	ND	ND	7.0E−04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E−04	5.2E−05	3.1E−05	2.2E−05	5.2E−03	7.0E−04	8.4E−03	9.0E−03	5.8E−02		6.3E−01	6.8E−01	6.6E+00	2.7E+00	1.2E−04	1.3E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10e
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	1.7E−09	1.2E−14	1.5E−14	1.9E−01	1.5E−06	1.9E−06	5.3E−05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	3.3E−06	2.4E−06	9.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	1.3E−06	1.0E−06	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	4.5E−06	2.0E−07	3.4E−08	3.2E−07	9.1E−03	2.1E−03	2.0E−02	4.2E−03	1.5E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	8.8E−09	4.2E−09	1.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.5E−06	7.1E−07	5.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.2E−07	3.7E−07	4.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	1.6E−04	9.2E−09	6.4E−08	2.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.0E−07	9.0E−07	5.4E−07	4.1E−02	9.6E−02	5.7E−02	1.1E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.5E−07	1.3E−07	4.1E−07	6.2E−02	8.2E−02	2.6E−01	7.8E−04	5.0E−03	NA	NA	NA	NA	NA	NA	NA
manganese	3.1E−04	7.6E−07	1.8E−07	6.2E−07	1.9E−01	5.8E−02	2.0E−01	2.7E−02	2.8E−01	NA	NA	NA	NA	NA	NA	NA
mercury	2.0E−08	6.1E−08	4.9E−06	3.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.5E−07	3.8E−07	3.8E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.2E−07	3.1E−07	2.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.3E−08	6.2E−08	6.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.0E−07	4.6E−07	1.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.7E−07	2.9E−06	5.8E−07	6.5E−04	1.3E−01	2.6E−02	1.1E−02	3.6E−03	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.3E−05	3.1E−07	3.7E−06	9.6E−03	1.3E−03	1.5E−02	1.7E−02	1.1E−01	NA	NA	NA	NA	NA	NA	NA
vanadium	ND	1.6E−07	1.2E−07	3.9E−09	4.1E−03	7.6E−03	2.4E−04	9.4E−03	6.0E−03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	4.3E−06	1.0E−04	4.1E−05	1.2E−01	3.0E+00	1.2E+00	9.5E−04	1.2E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.2E−11	4.0E−12	9.1E−12	3.5E−05	1.5E−05	3.3E−05	9.2E−06	1.3E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.3E−13	9.7E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.9E−04	6.9E−05	8.8E−05	2.4E−05	5.4E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.2E−13	9.9E−12	1.9E−16	3.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.3E−04	8.9E−05	1.1E−04	2.3E−05	5.1E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.1E−05	2.3E−07	2.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.3E−11	6.0E−10	7.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.2E−11	2.2E−12	2.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.7E−04	5.9E−05	1.2E−04	6.7E−05	6.3E−01	3.4E+00	1.8E+00	7.1E−02	4.1E−01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–10f
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.7E–09	1.2E–14	1.5E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.6E–06	1.9E–06	7.6E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	9.7E–07	7.8E–07	9.4E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.9E–06	1.3E–07	2.2E–08	2.1E–07	NA	NA	NA	NA	NA	NA	3.5E–02	2.2E–02	1.8E–03	1.7E–02	ND	1.1E–04
beryllium	ND	5.6E–09	2.6E–09	9.5E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.6E–06	4.4E–07	3.2E–06	NA	NA	NA	NA	NA	NA	9.3E–02	3.3E–01	4.6E–02	3.4E–01	ND	5.4E–03
chromium vi	ND	1.4E–07	2.4E–07	2.6E–07	NA	NA	NA	NA	NA	NA	4.0E–01	1.2E–01	6.3E–02	7.0E–02	ND	5.1E–03
cobalt	1.1E–04	6.4E–09	4.4E–08	1.8E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.9E–07	6.5E–07	3.9E–07	NA	NA	NA	NA	NA	NA	5.3E–03	1.1E–02	1.2E–02	7.1E–03	ND	ND
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.2E–07	1.1E–07	3.5E–07	NA	NA	NA	NA	NA	NA	8.8E–02	2.7E–02	1.4E–02	4.4E–02	ND	5.1E–03
manganese	2.2E–04	5.5E–07	1.3E–07	4.4E–07	NA	NA	NA	NA	NA	NA	5.8E–02	3.9E–02	4.6E–03	1.6E–02	ND	5.6E–03
mercury	1.3E–08	3.8E–08	3.1E–06	2.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	9.2E–08	2.4E–07	2.4E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	2.1E–07	2.0E–07	1.3E–07	NA	NA	NA	NA	NA	NA	8.9E–02	1.5E–01	6.4E–02	4.3E–02	ND	2.6E–04
selenium	ND	1.4E–08	3.8E–08	4.0E–08	NA	NA	NA	NA	NA	NA	1.5E–02	1.3E–02	1.4E–02	1.5E–02	ND	5.5E–05
silver	ND	2.2E–07	3.4E–07	9.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	8.8E–08	1.5E–06	3.0E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	1.0E–05	2.4E–07	2.9E–06	5.2E–03	7.0E–04	8.4E–03	9.0E–03	5.8E–02	NA	8.2E–03	1.3E–03	1.9E–05	2.3E–04	ND	4.7E–04
vanadium	ND	1.0E–07	8.1E–08	2.6E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.4E–06	3.5E–05	1.4E–05	NA	NA	NA	NA	NA	NA	4.6E–04	1.5E–02	1.8E–01	7.1E–02	ND	3.2E–06
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	7.3E–12	1.3E–12	3.0E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.1E–13	2.4E–17	3.2E–17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E–14	2.2E–12	4.3E–17	8.8E–17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	8.8E–06	6.4E–08	8.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.3E–11	1.8E–10	2.3E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.4E–11	1.4E–12	1.8E–12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.9E–02	5.8E–03	ND	ND	ND	1.1E–04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.3E–02	1.1E–02	ND	ND	ND	2.1E–04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.3E–04	2.8E–05	4.5E–05	3.2E–05	5.2E–03	7.0E–04	8.4E–03	9.0E–03	5.8E–02		9.1E–01	7.4E–01	4.0E–01	6.2E–01	0.0E+00	2.2E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11a
ILCRs FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.0E–15	1.0E–13	1.6E–13	1.3E–12	3.0E–08	1.1E–07	9.4E–07	8.8E–09	NA	4.7E–06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.7E–13	1.6E–13	1.2E–15	2.7E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.8E–11	4.1E–12	1.3E–16	6.3E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.3E–12	8.3E–13	6.9E–17	3.2E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.6E–10	1.9E–10	9.6E–12	4.1E–10	NA	NA	NA	NA	NA	NA	8.3E–07	2.6E–07	5.6E–09	2.4E–07	4.3E–07	NA
Ra_{228+1d}	1.6E–11	6.0E–11	7.4E–13	3.2E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.7E–14	9.2E–15	8.1E–16	5.9E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.9E–14	6.9E–13	5.6E–14	6.5E–12	1.0E–06	2.0E–07	2.4E–05	3.7E–08	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	6.4E–14	2.9E–13	2.1E–13	5.7E–12	3.3E–07	1.1E–06	3.1E–05	1.9E–09	NA	6.5E–12	NA	NA	NA	NA	NA	NA
Th_{228+7d}	2.5E–10	4.4E–12	1.2E–15	2.4E–14	3.7E–10	1.8E–11	3.6E–10	3.9E–08	NA	3.0E–05	NA	NA	NA	NA	NA	NA
Th_{230}	8.5E–09	1.0E–10	1.1E–13	2.2E–12	2.9E–10	1.4E–11	2.8E–10	3.0E–08	NA	9.3E–10	6.5E–08	1.7E–08	4.0E–12	8.0E–11	NA	NA
Th_{232}	2.3E–10	2.6E–12	2.9E–15	5.7E–14	7.8E–11	3.8E–12	7.4E–11	8.1E–09	NA	1.3E–10	NA	NA	NA	NA	NA	NA
U_{234}	4.5E–09	7.3E–11	7.5E–13	5.3E–11	4.4E–08	2.6E–09	1.8E–07	9.7E–08	NA	1.4E–09	8.4E–08	2.2E–08	1.5E–10	1.1E–08	NA	NA
$U_{235/236}$	2.8E–10	4.7E–12	4.9E–14	3.4E–12	1.1E–08	6.5E–10	4.6E–08	2.4E–08	NA	2.7E–06	NA	NA	NA	NA	NA	NA
U_{238+2d}	7.6E–09	1.1E–10	1.1E–12	7.9E–11	1.1E–07	6.7E–09	4.7E–07	2.5E–07	NA	2.4E–06	1.4E–07	3.7E–08	2.5E–10	1.8E–08	NA	NA
Rn_{222+4d}	7.9E–08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.0E–07	5.5E–10	1.3E–11	5.9E–10	1.6E–06	1.4E–06	5.6E–05	4.9E–07		3.9E–05	1.1E–06	3.4E–07	6.0E–09	2.7E–07	4.3E–07	
Chemicals																
arsenic	9.0E–11	3.8E–10	1.3E–10	9.5E–11	NA	NA	NA	NA	NA	NA	2.6E–04	1.0E–04	1.8E–05	1.3E–05	ND	5.6E–07
beryllium	5.5E–12	9.2E–11	2.0E–11	4.1E–13	1.1E–06	9.6E–07	2.0E–08	6.6E–06	6.6E–06	NA	2.7E–04	9.4E–05	7.2E–06	1.5E–07	ND	5.5E–05
cadmium	1.7E–11	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
chromium vi	5.1E–10	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	1.2E–11	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
benzene	1.8E–19	8.2E–18	1.5E–21	1.1E–20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	2.0E–15	1.6E–16	2.1E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	7.6E–15	3.7E–17	2.8E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E–18	6.9E–18	6.9E–22	5.5E–21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E–17	1.3E–15	1.1E–20	1.3E–19	3.3E–08	4.0E–13	4.7E–12	4.9E–11	1.5E–10	NA	NA	NA	NA	NA	NA	NA
n–nitrosodiphenylamine	ND	2.5E–16	7.3E–19	5.9E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n–nitrosodipropylamine	ND	2.8E–14	6.2E–19	4.9E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.9E–12	3.6E–09	1.2E–11	8.7E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.4E–11	2.7E–09	9.5E–13	7.1E–12	NA	NA	NA	NA	NA	NA	5.4E–07	3.8E–07	7.4E–11	5.6E–10	2.2E–06	7.3E–08
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.4E–14	8.2E–14	4.7E–14	3.5E–13	1.6E–08	1.7E–08	1.3E–07	6.9E–09	6.9E–09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E–13	6.1E–12	9.5E–12	7.0E–11	4.9E–07	1.8E–06	1.4E–05	3.8E–07	3.8E–07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.3E–14	7.4E–13	1.2E–12	9.0E–12	6.9E–08	2.7E–07	2.0E–06	5.4E–08	5.4E–08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.0E–14	3.2E–13	2.9E–12	2.2E–11	1.3E–08	4.8E–07	3.6E–06	2.7E–08	2.7E–08	NA	NA	NA	NA	NA	NA	NA
chrysene	1.5E–16	5.1E–15	3.0E–15	2.2E–14	1.2E–09	1.3E–09	1.0E–08	5.3E–10	5.3E–10	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.4E–14	2.0E–12	1.7E–11	1.3E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3–cd)pyrene	3.4E–14	1.1E–12	5.0E–12	3.7E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor–1254	ND	3.2E–11	8.4E–11	6.2E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor–1260	ND	2.3E–13	1.1E–11	8.4E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.0E–15	1.2E–14	9.2E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–dde	ND	4.9E–16	3.2E–16	2.4E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E–17	3.4E–16	1.4E–16	1.0E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E–16	6.6E–15	2.9E–16	2.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	2.8E–16	6.8E–15	2.3E–12	1.9E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.3E–16	5.6E–15	2.9E–12	2.4E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	6.6E–10	6.8E–09	3.0E–10	1.2E–09	1.7E–06	3.6E–06	1.9E–05	7.1E–06	7.1E–06		5.4E–04	1.9E–04	2.5E–05	1.3E–05	2.7E–06	5.5E–05
Sum Chem (BaP for PAHs):	6.6E–10	6.8E–09	3.8E–10	1.8E–09	2.8E–06	1.5E–05	1.0E–04	8.1E–06	8.1E–06		5.4E–04	1.9E–04	2.5E–05	1.3E–05	2.7E–06	5.5E–05
TOTAL ALL (TEF Approach):	1.0E–07	7.3E–09	3.2E–10	1.8E–09	3.3E–06	5.0E–06	7.6E–05	7.6E–06	7.1E–06	3.9E–05	5.4E–04	1.9E–04	2.5E–05	1.3E–05	3.2E–06	5.5E–05
TOTAL ALL (BaP Approach):	1.0E–07	7.3E–09	3.9E–10	2.3E–09	4.4E–06	1.6E–05	1.6E–04	8.6E–06	8.1E–06	3.9E–05	5.4E–04	1.9E–04	2.5E–05	1.3E–05	3.2E–06	5.5E–05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11b
ILCRs FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	7.2E−16	3.5E−14	5.6E−14	4.6E−13	3.4E−08	1.3E−07	1.1E−06	1.0E−08	NA	5.3E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.4E−13	7.9E−14	6.3E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.1E−11	1.6E−12	5.1E−17	2.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E−12	3.4E−13	2.8E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+3d}	5.5E−11	6.7E−11	3.4E−12	1.4E−10	NA	NA	NA	NA	NA	NA	3.8E−07	1.2E−07	2.5E−09	1.1E−07	2.0E−07	NA
Ra_{228+1d}	1.6E−12	6.0E−12	7.4E−14	3.2E−12	NA	NA	NA	NA	NA	NA	8.2E−07	2.1E−07	1.7E−09	7.6E−08	ND	NA
Ru_{106}	1.7E−14	9.2E−15	8.1E−16	5.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.2E−15	1.3E−13	1.0E−14	1.2E−12	4.3E−07	8.2E−08	9.6E−06	1.5E−08	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	4.5E−15	2.0E−14	1.5E−14	4.0E−13	1.2E−07	4.2E−07	1.1E−05	7.1E−10	NA	2.4E−12	NA	NA	NA	NA	NA	NA
Th_{228+7d}	6.1E−11	1.1E−12	3.0E−16	6.0E−15	2.7E−10	1.3E−11	2.6E−10	2.8E−08	NA	2.1E−05	1.7E−07	4.4E−08	7.9E−12	1.6E−10	NA	NA
Th_{230}	5.0E−10	5.9E−12	6.7E−15	1.3E−13	1.3E−10	6.5E−12	1.3E−10	1.4E−08	NA	4.2E−10	3.5E−08	9.4E−09	2.2E−12	4.4E−11	NA	NA
Th_{232}	3.2E−11	3.7E−13	4.1E−16	8.1E−15	NA	NA	NA	NA	NA	NA	1.2E−08	3.2E−09	7.5E−13	1.5E−11	NA	NA
U_{234}	8.2E−10	1.3E−11	1.4E−13	9.7E−12	1.2E−08	6.9E−10	4.8E−08	2.6E−08	NA	3.6E−10	1.1E−07	3.0E−08	2.0E−10	1.5E−08	NA	NA
$U_{235/236}$	6.8E−11	1.2E−12	1.2E−14	8.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.9E−09	2.6E−11	2.7E−13	1.9E−11	2.3E−08	1.3E−09	9.4E−08	5.0E−08	NA	4.8E−07	2.2E−07	5.9E−08	3.9E−10	2.8E−08	NA	NA
Rn_{222+4d}	3.8E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.1E−08	1.2E−10	3.9E−12	1.8E−10	6.2E−07	6.3E−07	2.2E−05	1.4E−07		2.7E−05	1.8E−06	4.8E−07	4.9E−09	2.3E−07	2.0E−07	
Chemicals																
arsenic	3.7E−11	1.5E−10	5.5E−11	3.9E−11	NA	NA	NA	NA	NA	NA	1.5E−03	5.7E−04	1.0E−04	7.2E−05	ND	3.1E−06
beryllium	2.1E−12	3.5E−11	7.3E−12	1.5E−13	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06	NA	NA	NA	NA	NA	NA	NA
cadmium	7.9E−12	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
chromium vi	1.9E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
nickel	5.1E−12	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.4E−19	6.7E−18	1.2E−21	9.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.1E−15	8.6E−17	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.6E−15	8.0E−18	6.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E−18	4.9E−18	4.8E−22	3.9E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E−18	4.8E−16	4.1E−21	4.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	2.9E−16	8.5E−19	6.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	2.2E−14	4.8E−19	3.8E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E−11	2.0E−08	6.4E−11	4.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.3E−10	1.5E−08	5.2E−12	3.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.2E−14	3.9E−14	2.2E−14	1.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.7E−14	3.1E−12	4.8E−12	3.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.2E−14	3.9E−13	6.3E−13	4.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.1E−15	1.6E−13	1.5E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	8.4E−17	2.8E−15	1.6E−15	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.1E−14	9.7E−13	8.4E−12	6.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.8E−14	5.5E−13	2.6E−12	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.4E−11	3.5E−11	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.0E−13	9.6E−12	7.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.5E−15	9.1E−15	6.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.5E−16	1.7E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E−17	3.4E−16	1.4E−16	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.6E−16	4.4E−15	1.9E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.0E−16	7.4E−15	2.5E−12	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E−16	4.4E−15	2.3E−12	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.0E−10	3.5E−08	2.0E−10	1.1E−09	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06		1.5E−03	5.7E−04	1.0E−04	7.2E−05	0.0E+00	3.1E−06
Sum Chem (BaP for PAHs):	4.0E−10	3.5E−08	2.4E−10	1.3E−09	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06		1.5E−03	5.7E−04	1.0E−04	7.2E−05	0.0E+00	3.1E−06
TOTAL ALL (TEF Approach):	4.1E−08	3.5E−08	2.0E−10	1.2E−09	1.2E−06	1.1E−06	2.2E−05	3.6E−06	3.5E−06	2.7E−05	1.5E−03	5.7E−04	1.0E−04	7.3E−05	2.0E−07	3.1E−06
TOTAL ALL (BaP Approach):	4.1E−08	3.5E−08	2.4E−10	1.5E−09	1.2E−06	1.1E−06	2.2E−05	3.6E−06	3.5E−06	2.7E−05	1.5E−03	5.7E−04	1.0E−04	7.3E−05	2.0E−07	3.1E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11c
ILCRs FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	5.6E−16	2.7E−14	4.4E−14	3.6E−13	2.4E−08	9.2E−08	7.5E−07	7.1E−09	NA	3.7E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.0E−13	6.9E−14	5.6E−16	1.2E−15	NA	NA	NA	NA	NA	NA	1.2E−06	3.7E−07	1.7E−09	3.7E−09	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.5E−11	2.2E−12	7.1E−17	3.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.9E−12	3.0E−13	2.5E−17	1.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	3.0E−11	3.7E−11	1.9E−12	7.8E−11	NA	NA	NA	NA	NA	NA	8.8E−07	2.8E−07	5.9E−09	2.5E−07	4.5E−07	NA
Ra_{228+1d}	3.0E−12	1.1E−11	1.4E−13	6.0E−12	8.5E−09	2.2E−09	9.6E−08	5.0E−08	NA	1.1E−05	9.2E−07	2.4E−07	2.0E−09	8.6E−08	ND	NA
Ru_{106}	8.8E−15	4.8E−15	4.3E−16	3.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.1E−15	1.2E−13	9.8E−15	1.2E−12	8.1E−07	1.6E−07	1.8E−05	2.9E−08	NA	ND	4.3E−07	1.9E−07	9.0E−09	1.1E−06	NA	NA
Tc_{99}	5.6E−15	2.5E−14	1.8E−14	4.9E−13	NA	NA	NA	NA	NA	NA	6.7E−08	2.0E−08	8.9E−09	2.5E−07	NA	NA
Th_{228+1d}	6.2E−11	1.1E−12	3.1E−16	6.1E−15	2.9E−10	1.4E−11	2.8E−10	3.0E−08	NA	2.3E−05	9.9E−07	2.5E−07	4.6E−11	9.5E−10	NA	NA
Th_{230}	1.2E−09	1.4E−11	1.6E−14	3.2E−13	1.1E−10	5.2E−12	1.0E−10	1.1E−08	NA	3.4E−10	5.8E−08	1.5E−08	3.6E−12	7.2E−11	NA	NA
Th_{232}	4.7E−11	5.3E−13	6.0E−16	1.2E−14	NA	NA	NA	NA	NA	NA	6.8E−08	1.8E−08	4.2E−12	8.4E−11	NA	NA
U_{234}	1.1E−09	1.9E−11	1.9E−13	1.4E−11	8.8E−09	5.2E−10	3.7E−08	1.9E−08	NA	2.7E−10	2.8E−06	7.5E−07	5.0E−09	3.6E−07	NA	NA
$U_{235/236}$	8.4E−11	1.4E−12	1.5E−14	1.0E−12	NA	NA	NA	NA	NA	NA	6.3E−08	1.7E−08	1.1E−10	8.0E−09	NA	NA
U_{238+2d}	2.3E−09	3.3E−11	3.4E−13	2.4E−11	1.4E−08	8.5E−10	6.0E−08	3.2E−08	NA	3.0E−07	5.8E−06	1.5E−06	1.0E−08	7.4E−07	NA	NA
Rn_{222+4d}	1.0E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.5E−08	1.2E−10	2.6E−12	1.2E−10	8.7E−07	2.5E−07	1.9E−05	1.8E−07		3.8E−05	1.3E−05	3.7E−06	4.3E−08	2.8E−06	4.5E−07	
Chemicals																
arsenic	2.8E−11	1.2E−10	4.2E−11	2.9E−11	NA	NA	NA	NA	NA	NA	3.0E−03	1.1E−03	2.0E−04	1.4E−04	ND	6.3E−06
beryllium	1.8E−12	3.0E−11	6.4E−12	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.5E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
chromium vi	1.4E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	3.2E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
benzene	4.2E−20	1.9E−18	3.4E−22	2.6E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.6E−16	4.5E−17	5.9E−16	NA	NA	NA	NA	NA	NA	7.7E−08	1.5E−08	4.0E−10	6.1E−09	ND	1.4E−07
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.1E−15	5.2E−18	3.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.7E−19	1.7E−18	1.7E−22	1.3E−21	NA	NA	NA	NA	NA	NA	9.7E−07	3.5E−07	1.9E−11	1.6E−10	9.7E−05	6.5E−08
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7E−04	1.2E−04	9.1E−09	7.6E−08	8.1E−04	4.2E−05
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E−04	8.2E−05	7.5E−09	5.7E−08	1.2E−03	6.0E−06
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.1E−18	2.4E−16	2.0E−21	2.4E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.0E−16	3.0E−19	2.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.6E−15	1.4E−19	1.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E−12	1.5E−09	4.8E−12	3.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	9.9E−12	1.1E−09	3.9E−13	2.9E−12	NA	NA	NA	NA	NA	NA	2.0E−06	1.4E−06	2.8E−10	2.1E−09	8.4E−06	2.7E−07
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.9E−15	2.0E−14	1.1E−14	8.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.7E−14	1.5E−12	2.3E−12	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.8E−15	1.8E−13	3.0E−13	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E−15	6.7E−14	6.2E−13	4.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.0E−17	1.3E−15	7.8E−16	5.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E−14	4.4E−13	3.8E−12	2.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	8.1E−15	2.5E−13	1.2E−12	8.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	9.9E−12	2.6E−11	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.5E−14	2.7E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.3E−16	3.9E−15	2.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.5E−16	1.6E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.1E−18	1.6E−16	6.7E−17	5.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.2E−16	3.4E−15	1.5E−16	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.1E−16	2.6E−15	8.9E−13	7.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.3E−17	1.3E−15	6.7E−13	5.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.9E−10	2.8E−09	9.1E−11	3.5E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		3.5E−03	1.3E−03	2.0E−04	1.4E−04	2.1E−03	5.5E−05
Sum Chem (BaP for PAHs):	1.9E−10	2.8E−09	1.1E−10	4.7E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		3.5E−03	1.3E−03	2.0E−04	1.4E−04	2.1E−03	5.5E−05
TOTAL ALL (TEF Approach):	1.5E−08	2.9E−09	9.4E−11	4.8E−10	8.7E−07	2.5E−07	1.9E−05	1.8E−07	0.0E+00	3.8E−05	3.5E−03	1.3E−03	2.0E−04	1.5E−04	2.1E−03	5.5E−05
TOTAL ALL (BaP Approach):	1.5E−08	2.9E−09	1.1E−10	6.0E−10	8.7E−07	2.5E−07	1.9E−05	1.8E−07	0.0E+00	3.8E−05	3.5E−03	1.3E−03	2.0E−04	1.5E−04	2.1E−03	5.5E−05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11d
ILCRs FOR OFF–PROPERTY CHILD
WESTERN FENCELINEINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	5.2E−16	2.5E−14	4.0E−14	3.3E−13	3.0E−08	1.1E−07	9.4E−07	8.8E−09	NA	4.7E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.4E−13	5.6E−14	4.5E−16	9.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	9.0E−12	1.3E−12	4.3E−17	2.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.4E−12	2.1E−13	1.8E−17	8.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+2d}	2.6E−11	3.2E−11	1.6E−12	6.7E−11	NA	NA	NA	NA	NA	NA	5.8E−07	1.8E−07	3.9E−09	1.7E−07	3.0E−07	NA
Ra_{228+1d}	1.2E−12	4.5E−12	5.5E−14	2.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.1E−14	6.1E−15	5.4E−16	4.0E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.1E−15	7.5E−14	6.1E−15	7.1E−13	1.6E−06	3.0E−07	3.5E−05	5.5E−08	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	3.1E−15	1.4E−14	1.0E−14	2.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	4.6E−11	8.3E−13	2.3E−16	4.5E−15	3.3E−10	1.6E−11	3.1E−10	3.4E−08	NA	2.6E−05	NA	NA	NA	NA	NA	NA
Th_{230}	3.9E−10	4.6E−12	5.2E−15	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232}	2.6E−11	2.9E−13	3.3E−16	6.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.0E−10	9.7E−12	1.0E−13	7.1E−12	7.9E−09	4.7E−10	3.3E−08	1.7E−08	NA	2.4E−10	7.1E−08	1.9E−08	1.2E−10	9.0E−09	NA	NA
$U_{235/236}$	5.0E−11	8.4E−13	8.7E−15	6.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.4E−09	2.0E−11	2.1E−13	1.5E−11	1.9E−08	1.1E−09	8.0E−08	4.2E−08	NA	4.0E−07	1.1E−07	2.8E−08	1.9E−10	1.3E−08	NA	NA
Rn_{222+4d}	2.2E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.4E−08	7.4E−11	2.0E−12	9.3E−11	1.6E−06	4.1E−07	3.6E−05	1.6E−07		3.1E−05	7.6E−07	2.3E−07	4.2E−09	1.9E−07	3.0E−07	
Chemicals																
arsenic	3.5E−11	1.5E−10	5.3E−11	3.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E−12	2.5E−11	5.4E−12	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	5.5E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.4E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	3.7E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	4.2E−20	1.9E−18	3.4E−22	2.6E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.0E−16	4.0E−17	5.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	6.7E−16	3.3E−18	2.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E−19	1.5E−18	1.5E−22	1.2E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E−18	1.7E−16	1.4E−21	1.7E−20	NA	NA	NA	NA	NA	NA	4.1E−08	1.0E−08	2.7E−14	3.5E−13	6.6E−08	1.1E−09
n−nitrosodiphenylamine	ND	1.3E−16	3.8E−19	3.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.5E−15	1.4E−19	1.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.9E−12	7.2E−09	2.3E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.6E−11	5.1E−09	1.8E−12	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E−15	1.5E−14	8.3E−15	6.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.3E−14	1.1E−12	1.7E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.5E−15	1.4E−13	2.3E−13	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E−15	5.6E−14	5.1E−13	3.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.0E−17	1.0E−15	5.8E−16	4.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.1E−14	3.4E−13	2.9E−12	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.3E−15	2.0E−13	9.2E−13	6.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	5.7E−12	1.5E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.5E−14	2.7E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	5.1E−16	3.1E−15	2.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.3E−16	8.3E−17	6.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.9E−18	1.6E−16	6.4E−17	4.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.5E−17	2.1E−15	9.2E−17	6.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.2E−16	3.0E−15	1.0E−12	8.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.3E−17	1.3E−15	6.6E−13	5.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E−10	1.2E−08	1.1E−10	4.2E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		4.1E−08	1.0E−08	2.7E−14	3.5E−13	6.6E−08	1.1E−09
Sum Chem (BaP for PAHs):	2.4E−10	1.2E−08	1.2E−10	5.1E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		4.1E−08	1.0E−08	2.7E−14	3.5E−13	6.6E−08	1.1E−09
TOTAL ALL (TEF Approach):	2.5E−08	1.3E−08	1.1E−10	5.1E−10	1.6E−06	4.1E−07	3.6E−05	1.6E−07	0.0E+00	3.1E−05	8.0E−07	2.4E−07	4.2E−09	1.9E−07	3.6E−07	1.1E−09
TOTAL ALL (BaP Approach):	2.5E−08	1.3E−08	1.2E−10	6.1E−10	1.6E−06	4.1E−07	3.6E−05	1.6E−07	0.0E+00	3.1E−05	8.0E−07	2.4E−07	4.2E−09	1.9E−07	3.6E−07	1.1E−09

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11e
ILCRs FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.3E–15	6.5E–14	1.0E–13	8.4E–13	3.5E–08	1.3E–07	1.1E–06	1.0E–08	NA	5.4E–06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.0E–13	1.4E–13	1.1E–15	2.4E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.0E–11	2.9E–12	9.4E–17	4.4E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.4E–12	5.3E–13	4.4E–17	2.1E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.8E–10	2.2E–10	1.1E–11	4.7E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{228+1d}	5.2E–12	2.0E–11	2.4E–13	1.0E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.8E–14	9.7E–15	8.6E–16	6.3E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.2E–14	3.0E–13	2.4E–14	2.8E–12	2.2E–06	4.3E–07	5.0E–05	7.9E–08	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	1.2E–14	5.3E–14	3.8E–14	1.0E–12	1.7E–07	5.8E–07	1.6E–05	9.8E–10	NA	3.4E–12	NA	NA	NA	NA	NA	NA
Th_{228+7d}	1.1E–10	2.0E–12	5.4E–16	1.1E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	2.3E–09	2.7E–11	3.0E–14	5.9E–13	9.3E–11	4.6E–12	8.9E–11	9.7E–09	NA	3.0E–10	NA	NA	NA	NA	NA	NA
Th_{232}	8.2E–11	9.3E–13	1.1E–15	2.1E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.8E–09	2.9E–11	3.0E–13	2.1E–11	2.0E–08	1.2E–09	8.5E–08	4.5E–08	NA	6.3E–10	NA	NA	NA	NA	NA	NA
$U_{235/236}$	1.4E–10	2.4E–12	2.5E–14	1.7E–12	2.1E–09	1.3E–10	8.9E–09	4.7E–09	NA	5.2E–07	NA	NA	NA	NA	NA	NA
U_{238+2d}	3.8E–09	5.4E–11	5.6E–13	3.9E–11	3.6E–08	2.1E–09	1.5E–07	8.0E–08	NA	7.6E–07	NA	NA	NA	NA	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.4E–09	3.6E–10	1.3E–11	5.5E–10	2.5E–06	1.1E–06	6.7E–05	2.3E–07		6.7E–06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Chemicals																
arsenic	5.6E–11	2.3E–10	8.3E–11	5.9E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	4.0E–12	6.6E–11	1.4E–11	3.0E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.1E–11	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.5E–10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	7.8E–12	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.6E–19	1.2E–17	2.1E–21	1.6E–20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	2.2E–15	1.7E–16	2.3E–15	3.4E–09	6.4E–10	8.4E–09	1.2E–09	5.1E–11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	5.0E–15	2.5E–17	1.8E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.6E–18	9.1E–18	9.1E–22	7.3E–21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.4E–17	1.6E–15	1.4E–20	1.6E–19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n–nitrosodiphenylamine	ND	2.9E–16	8.5E–19	6.9E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n–nitrosodipropylamine	ND	4.0E–14	8.7E–19	6.9E–18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.2E–12	5.7E–09	1.8E–11	1.4E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.6E–11	4.0E–09	1.4E–12	1.1E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.6E–14	8.9E–14	5.0E–14	3.8E–13	3.1E–08	3.4E–08	2.5E–07	1.3E–08	1.3E–08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.2E–13	7.0E–12	1.1E–11	8.2E–11	1.1E–06	4.3E–06	3.2E–05	8.8E–07	8.8E–07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E–14	7.7E–13	1.2E–12	9.3E–12	1.4E–07	5.5E–07	4.1E–06	1.1E–07	1.1E–07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E–14	3.6E–13	3.3E–12	2.5E–11	3.1E–08	1.1E–06	8.3E–06	6.2E–08	6.2E–08	NA	NA	NA	NA	NA	NA	NA
chrysene	1.5E–16	5.1E–15	3.0E–15	2.2E–14	3.0E–09	3.2E–09	2.4E–08	1.3E–09	1.3E–09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.4E–14	2.3E–12	2.0E–11	1.5E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3–cd)pyrene	3.5E–14	1.1E–12	5.1E–12	3.8E–11	1.0E–07	1.6E–06	1.2E–05	1.5E–07	1.5E–07	NA	NA	NA	NA	NA	NA	NA
aroclor–1254	ND	3.9E–11	1.0E–10	7.5E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor–1260	ND	3.4E–13	1.7E–11	1.2E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.5E–15	1.6E–14	1.2E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–dde	ND	4.5E–16	2.9E–16	2.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E–17	3.4E–16	1.4E–16	1.0E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.2E–16	6.1E–15	2.7E–16	2.0E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	3.5E–16	8.4E–15	2.9E–12	2.4E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.3E–16	8.0E–15	4.1E–12	3.5E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.7E–10	1.0E–08	2.8E–10	1.4E–09	1.5E–06	7.6E–06	5.7E–05	1.2E–06	1.2E–06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	4.7E–10	1.0E–08	3.6E–10	2.0E–09	4.1E–06	3.7E–05	2.8E–04	3.9E–06	3.9E–06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	8.9E–09	1.0E–08	3.0E–10	2.0E–09	3.9E–06	8.8E–06	1.2E–04	1.4E–06	1.2E–06	6.7E–06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	8.9E–09	1.0E–08	3.8E–10	2.6E–09	6.6E–06	3.8E–05	3.4E–04	4.1E–06	3.9E–06	6.7E–06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–11f
ILCRs FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	6.4E−16	3.1E−14	5.0E−14	4.1E−13	2.8E−08	1.1E−07	8.8E−07	8.2E−09	NA	4.4E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.2E−13	7.5E−14	6.0E−16	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	1.7E−11	2.5E−12	8.3E−17	3.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E−12	3.5E−13	2.9E−17	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	3.4E−11	4.2E−11	2.1E−12	8.8E−11	NA	NA	NA	NA	NA	NA	3.0E−07	9.6E−08	2.0E−09	8.6E−08	1.6E−07	NA
Ra_{228+1d}	3.2E−12	1.2E−11	1.5E−13	6.3E−12	8.5E−09	2.2E−09	9.6E−08	5.0E−08	NA	1.1E−05	NA	NA	NA	NA	NA	NA
Ru_{106}	9.2E−15	5.1E−15	4.5E−16	3.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	6.2E−15	1.5E−13	1.2E−14	1.4E−12	9.4E−07	1.8E−07	2.1E−05	3.3E−08	NA	ND	NA	NA	NA	NA	NA	NA
Tc_{99}	9.8E−15	4.4E−14	3.1E−14	8.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	7.2E−11	1.3E−12	3.6E−16	7.1E−15	2.9E−10	1.4E−11	2.8E−10	3.0E−08	NA	2.3E−05	6.9E−08	1.8E−08	3.2E−12	6.6E−11	NA	NA
Th_{230}	1.2E−09	1.4E−11	1.6E−14	3.2E−13	1.1E−10	5.2E−12	1.0E−10	1.1E−08	NA	3.4E−10	1.9E−08	5.1E−09	1.2E−12	2.4E−11	NA	NA
Th_{232}	5.5E−11	6.3E−13	7.1E−16	1.4E−14	NA	NA	NA	NA	NA	NA	7.6E−09	2.0E−09	4.7E−13	9.4E−12	NA	NA
U_{234}	1.4E−09	2.3E−11	2.4E−13	1.7E−11	1.3E−08	7.6E−10	5.3E−08	2.8E−08	NA	3.9E−10	2.0E−08	5.3E−09	3.5E−11	2.6E−09	NA	NA
$U_{235/236}$	1.0E−10	1.8E−12	1.8E−14	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	2.8E−09	4.0E−11	4.2E−13	2.9E−11	1.9E−08	1.1E−09	8.0E−08	4.2E−08	NA	4.0E−07	4.1E−08	1.1E−08	7.2E−11	5.2E−09	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	5.8E−09	1.4E−10	3.0E−12	1.4E−10	1.0E−06	2.9E−07	2.2E−05	2.0E−07		3.8E−05	4.6E−07	1.4E−07	2.1E−09	9.4E−08	1.6E−07	
Chemicals																
arsenic	4.3E−11	1.8E−10	6.4E−11	4.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	2.5E−12	4.1E−11	8.8E−12	1.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	6.9E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
chromium vi	2.2E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	5.1E−12	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
benzene	5.4E−20	2.5E−18	4.5E−22	3.4E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	7.1E−16	5.7E−17	7.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.7E−15	8.5E−18	6.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.9E−19	2.3E−18	2.2E−22	1.8E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E−18	3.6E−16	3.1E−21	3.6E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.1E−16	3.2E−19	2.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	8.6E−15	1.9E−19	1.5E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.8E−12	1.6E−09	5.1E−12	3.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.0E−11	1.1E−09	4.0E−13	3.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.8E−15	2.6E−14	1.5E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.0E−14	1.9E−12	3.0E−12	2.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.4E−15	2.3E−13	3.8E−13	2.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.0E−15	9.5E−14	8.7E−13	6.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	5.0E−17	1.7E−15	9.7E−16	7.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.9E−14	6.1E−13	5.3E−12	3.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.1E−14	3.5E−13	1.6E−12	1.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.2E−11	3.1E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	7.3E−14	3.6E−12	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	7.7E−16	4.8E−15	3.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.0E−16	1.9E−16	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.7E−18	1.8E−16	7.3E−17	5.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.4E−16	3.9E−15	1.7E−16	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.2E−16	2.8E−15	9.6E−13	8.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.1E−17	1.7E−15	8.9E−13	7.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.9E−10	3.0E−09	1.3E−10	4.4E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	2.9E−10	3.0E−09	1.5E−10	6.1E−10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	6.1E−09	3.1E−09	1.3E−10	5.9E−10	1.0E−06	2.9E−07	2.2E−05	2.0E−07	0.0E+00	3.8E−05	4.6E−07	1.4E−07	2.1E−09	9.4E−08	1.6E−07	0.0E+00
TOTAL ALL (BaP Approach):	6.1E−09	3.1E−09	1.5E−10	7.5E−10	1.0E−06	2.9E−07	2.2E−05	2.0E−07	0.0E+00	3.8E−05	4.6E−07	1.4E−07	2.1E−09	9.4E−08	1.6E−07	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12a
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.3E−08	4.3E−14	3.2E−13	7.4E−01	2.7E−06	2.0E−05	2.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
antimony	ND	2.3E−05	7.4E−06	1.7E−05	3.2E−01	1.4E−01	3.3E−01	9.3E−02	6.2E−02	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	8.3E−06	3.0E−06	2.1E−06	NA	NA	NA	NA	NA	NA	5.9E+00	2.2E+00	4.0E−01	2.8E−01	ND	1.2E−02
barium	6.3E−06	1.2E−06	8.7E−08	4.7E−06	7.5E−02	7.7E−03	4.2E−01	4.4E−02	4.8E−03	NA	1.5E+00	1.5E+00	5.8E−02	3.2E+00	ND	3.2E−03
beryllium	ND	5.0E−08	1.1E−08	2.2E−10	6.1E−04	5.2E−04	1.1E−05	3.6E−03	3.6E−02	NA	1.5E−01	5.1E−02	3.9E−03	8.3E−05	ND	3.0E−02
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.6E−05	2.0E−06	8.3E−05	4.1E−01	5.4E−02	2.3E+00	2.4E−02	4.9E−02	NA	8.1E+00	5.0E+01	3.1E+00	1.3E+02	ND	3.2E−01
chromium vi	ND	1.3E−06	9.9E−07	6.3E−06	3.1E−02	4.2E−02	2.7E−01	6.0E−02	1.3E−02	NA	9.9E+01	5.1E+01	1.2E+01	7.8E+01	ND	8.8E−01
cobalt	2.3E−04	5.7E−08	1.8E−07	4.1E−07	3.6E−03	2.0E−02	4.7E−02	4.6E−03	1.0E−03	NA	3.2E−01	1.8E−01	2.2E−01	5.3E−01	ND	5.8E−04
copper	ND	2.3E−06	2.3E−06	7.9E−06	1.2E−01	1.2E−01	4.3E−01	4.1E−03	ND	NA	1.3E+00	4.4E+00	2.2E+00	7.7E+00	ND	ND
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	1.1E−06	4.5E−07	8.5E−06	7.6E−01	4.5E−01	8.4E+00	1.2E−02	2.4E−02	NA	5.4E+00	2.8E+00	6.4E−01	1.2E+01	ND	2.2E−01
manganese	4.9E−04	5.0E−06	5.1E−07	1.1E−05	2.3E+00	3.0E−01	6.2E+00	4.0E−01	1.3E+00	NA	5.7E+00	6.6E+00	3.5E−01	7.2E+00	ND	3.8E−01
mercury	3.2E−08	3.9E−07	1.4E−05	5.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	8.0E−07	9.2E−07	5.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.9E−06	8.2E−07	3.2E−06	1.0E−01	4.6E−02	1.8E−01	1.5E−02	7.6E−04	NA	1.3E+01	3.6E+01	7.0E+00	2.7E+01	ND	2.5E−02
selenium	ND	9.7E−08	1.2E−07	7.3E−07	4.0E−03	5.4E−03	3.3E−02	1.4E−03	1.8E−04	NA	7.2E−01	1.0E+00	4.9E−01	3.1E+00	ND	1.8E−03
silver	ND	1.7E−06	1.1E−06	1.8E−04	5.2E−02	4.1E−02	6.4E+00	4.6E−03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	8.6E−07	6.6E−06	7.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.1E−04	1.1E−06	7.8E−05	1.3E−01	7.8E−03	5.5E−01	2.9E−01	5.8E−01	NA	1.4E−01	3.7E−02	2.4E−04	1.8E−02	ND	5.5E−03
vanadium	ND	9.1E−07	3.2E−07	5.9E−08	2.4E−02	2.0E−02	3.7E−03	7.1E−02	1.4E−02	NA	3.3E+00	1.4E+00	1.4E−01	2.8E−02	ND	1.3E−01
zinc	ND	1.7E−05	1.8E−04	4.3E−04	1.9E+00	2.0E+01	4.7E+01	1.8E−02	7.4E−03	NA	2.5E−01	1.4E+01	7.5E+01	1.8E+02	ND	1.2E−03
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.1E−03	1.9E−03	2.1E−10	2.8E−09	ND	2.5E−05
bis(2−ethylhexyl)phthalate	ND	8.4E−11	6.8E−12	8.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2E−03	1.6E−03	1.8E−07	1.4E−06	8.4E−01	4.9E−04
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.3E−12	1.3E−16	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.3E−04	3.9E−05	2.9E−04	3.8E−05	2.7E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E−14	3.3E−11	2.8E−16	3.4E−15	8.4E−04	1.0E−08	1.2E−07	1.3E−06	3.8E−06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.1E−04	6.3E−05	4.7E−04	4.7E−05	3.3E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	8.0E−05	2.6E−07	1.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E−03	7.8E−04	2.6E−07	2.1E−06	3.4E−02	7.2E−04
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.4E−10	8.5E−10	6.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	9.6E−11	4.2E−12	3.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8E−03	1.8E−03	ND	ND	ND	1.4E−05
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.3E−01	1.6E−01	ND	ND	ND	1.3E−03
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.3E−04	2.7E−04	2.3E−04	8.5E−04	6.9E+00	2.1E+01	7.3E+01	1.0E+00	2.1E+00		1.4E+02	1.7E+02	1.0E+02	4.5E+02	8.7E−01	2.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12b
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	3.5E−09	1.1E−14	8.3E−14	7.4E−01	2.7E−06	2.0E−05	2.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.2E−05	3.9E−06	9.2E−06	NA	NA	NA	NA	NA	NA	7.0E+00	7.0E+00	1.2E+00	2.7E+00	ND	9.4E−02
arsenic	ND	3.4E−06	1.2E−06	8.6E−07	NA	NA	NA	NA	NA	NA	3.3E+01	1.3E+01	2.3E+00	1.6E+00	ND	7.0E−02
barium	2.4E−06	4.5E−07	3.3E−08	1.8E−06	4.1E−02	4.2E−03	2.3E−01	2.4E−02	2.6E−03	NA	7.5E−01	8.0E−01	3.0E−02	1.6E+00	ND	1.6E−03
beryllium	ND	1.9E−08	4.0E−09	8.4E−11	3.2E−04	2.7E−04	5.8E−06	1.9E−03	1.9E−02	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	7.3E−06	9.2E−07	3.9E−05	3.7E−01	4.9E−02	2.1E+00	2.2E−02	4.3E−02	NA	4.2E−01	2.6E+00	1.6E−01	6.8E+00	ND	1.7E−02
chromium vi	ND	5.0E−07	3.8E−07	2.4E−06	2.2E−02	3.1E−02	2.0E−01	4.4E−02	9.8E−03	NA	NA	NA	NA	NA	NA	NA
cobalt	9.8E−05	2.4E−08	7.4E−08	1.7E−07	2.8E−03	1.5E−02	3.6E−02	3.5E−03	7.8E−04	NA	NA	NA	NA	NA	NA	NA
copper	ND	6.4E−07	6.4E−07	2.2E−06	2.0E−01	2.1E−01	7.5E−01	7.2E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	4.0E−07	1.6E−07	3.0E−06	1.3E+00	7.8E−01	1.5E+01	2.1E−02	4.3E−02	NA	3.8E−01	2.0E−01	4.6E−02	8.7E−01	ND	1.5E−02
manganese	1.8E−04	1.9E−06	1.9E−07	3.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	8.9E−09	1.1E−07	3.9E−06	1.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.2E−07	3.7E−07	2.2E−06	2.0E−01	3.4E−01	2.0E+00	3.0E−02	7.9E−03	NA	5.8E−01	4.7E−01	2.9E−01	1.7E+00	ND	3.0E−03
nickel	ND	8.4E−07	3.6E−07	1.4E−06	9.4E−02	4.2E−02	1.6E−01	1.4E−02	6.9E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	6.4E−08	7.7E−08	4.8E−07	2.3E−03	3.1E−03	1.9E−02	8.2E−04	1.0E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.4E−07	5.8E−07	9.0E−05	NA	NA	NA	NA	NA	NA	3.7E−01	7.7E−01	2.7E−01	4.2E+01	ND	ND
thallium	ND	4.6E−07	3.5E−06	4.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	2.8E−05	2.9E−07	2.0E−05	2.5E−02	1.5E−03	1.0E−01	5.5E−02	1.1E−01	NA	3.4E−02	8.9E−03	5.9E−05	4.3E−03	ND	1.3E−03
vanadium	ND	3.9E−07	1.3E−07	2.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.1E−05	1.1E−04	2.6E−04	3.5E−01	3.8E+00	8.8E+00	3.4E−03	1.4E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E−03	4.7E−04	5.3E−11	6.9E−10	ND	6.1E−06
bis(2−ethylhexyl)phthalate	ND	4.5E−11	3.6E−12	4.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	9.3E−13	9.2E−17	7.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E−14	1.2E−11	1.0E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.5E−04	1.4E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.0E−10	6.3E−10	4.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	6.4E−11	2.8E−12	2.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.0E−03	1.0E−03	ND	ND	ND	8.0E−06
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.0E+00	2.6E−01	ND	ND	ND	2.0E−03
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.8E−04	5.1E−04	1.3E−04	4.6E−04	3.4E+00	5.2E+00	2.9E+01	2.3E−01	2.4E−01		4.4E+01	2.5E+01	4.2E+00	5.7E+01	0.0E+00	2.0E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12c
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	3.5E−09	1.1E−14	8.3E−14	NA	NA	NA	NA	NA	NA	1.8E−01	1.1E−01	2.1E−07	1.6E−06	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
antimony	ND	7.1E−06	2.3E−06	5.4E−06	NA	NA	NA	NA	NA	NA	5.0E+00	4.9E+00	8.1E−01	1.9E+00	ND	6.6E−02
arsenic	ND	2.6E−06	9.3E−07	6.5E−07	NA	NA	NA	NA	NA	NA	6.6E+01	2.5E+01	4.5E+00	3.2E+00	ND	1.4E−01
barium	2.0E−06	3.7E−07	2.8E−08	1.5E−06	NA	NA	NA	NA	NA	NA	2.8E−01	3.0E−01	1.1E−02	6.1E−01	ND	6.2E−04
beryllium	ND	1.6E−08	3.5E−09	7.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.1E−06	5.2E−07	2.2E−05	NA	NA	NA	NA	NA	NA	1.8E+00	1.1E+01	7.0E−01	3.0E+01	ND	7.3E−02
chromium vi	ND	3.6E−07	2.7E−07	1.7E−06	NA	NA	NA	NA	NA	NA	1.4E+01	7.3E+00	1.7E+00	1.1E+01	ND	1.3E−01
cobalt	7.0E−05	1.7E−08	5.3E−08	1.2E−07	NA	NA	NA	NA	NA	NA	4.6E−02	2.5E−02	3.2E−02	7.6E−02	ND	8.3E−05
copper	ND	5.9E−07	5.9E−07	2.1E−06	NA	NA	NA	NA	NA	NA	1.0E−01	3.6E−01	1.8E−01	6.4E−01	ND	ND
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	2.9E−07	1.2E−07	2.2E−06	NA	NA	NA	NA	NA	NA	3.8E−01	2.0E−01	4.5E−02	8.5E−01	ND	1.5E−02
manganese	1.5E−04	1.5E−06	1.5E−07	3.2E−06	NA	NA	NA	NA	NA	NA	1.6E+00	1.8E+00	9.6E−02	2.0E+00	ND	1.0E−01
mercury	8.9E−09	1.1E−07	3.9E−06	1.7E−07	NA	NA	NA	NA	NA	NA	3.2E−01	1.5E−01	3.1E+00	1.3E−01	ND	4.3E−03
molybdenum	ND	2.1E−07	2.4E−07	1.4E−06	NA	NA	NA	NA	NA	NA	4.5E−01	3.7E−01	2.2E−01	1.3E+00	ND	2.4E−03
nickel	ND	5.3E−07	2.3E−07	8.9E−07	NA	NA	NA	NA	NA	NA	9.3E−02	2.7E−01	5.2E−02	2.0E−01	ND	1.9E−04
selenium	ND	4.6E−08	5.5E−08	3.4E−07	NA	NA	NA	NA	NA	NA	2.6E−02	3.6E−02	1.8E−02	1.1E−01	ND	6.4E−05
silver	ND	5.3E−07	3.6E−07	5.7E−05	NA	NA	NA	NA	NA	NA	2.6E−01	5.3E−01	1.9E−01	2.9E+01	ND	ND
thallium	ND	2.3E−07	1.8E−06	2.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	3.4E−05	3.5E−07	2.5E−05	2.3E−02	1.4E−03	9.7E−02	5.1E−02	1.0E−01	NA	7.1E+00	1.9E+00	1.2E−02	9.0E−01	ND	2.8E−01
vanadium	ND	2.8E−07	9.6E−08	1.8E−08	NA	NA	NA	NA	NA	NA	2.7E−01	1.1E−01	1.2E−02	2.3E−03	ND	1.1E−02
zinc	ND	4.0E−06	4.3E−05	1.0E−04	NA	NA	NA	NA	NA	NA	2.1E−02	1.2E+00	6.2E+00	1.5E+01	ND	1.0E−04
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.2E−03	1.2E−03	1.3E−10	1.7E−09	ND	1.5E−05
bis(2−ethylhexyl)phthalate	ND	2.3E−11	1.9E−12	2.5E−11	NA	NA	NA	NA	NA	NA	3.2E−03	6.5E−04	1.7E−05	2.5E−04	ND	5.9E−03
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	3.2E−13	3.2E−17	2.6E−16	NA	NA	NA	NA	NA	NA	1.9E−01	6.7E−02	3.6E−06	3.0E−05	ND	1.3E−02
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	1.9E−01	ND
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.8E−01	2.5E−01	1.9E−05	1.6E−04	ND	9.0E−02
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8E−02	1.1E−02	1.1E−06	8.3E−06	ND	9.8E−04
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−14	6.1E−12	5.2E−17	6.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.3E−05	1.1E−07	8.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	1.7E−02	ND
4,4−ddt	ND	4.3E−11	2.7E−10	2.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	5.0E−11	2.2E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3E−01	6.0E−02	ND	ND	ND	4.6E−04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.8E−01	1.2E−01	ND	ND	ND	9.6E−04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E−04	9.0E−05	5.5E−05	2.3E−04	2.3E−02	1.4E−03	9.7E−02	5.1E−02	1.0E−01		1.0E+02	5.6E+01	1.8E+01	9.7E+01	2.1E−01	9.3E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12d
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
WESTERN FENCELINEINE, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOCs	Dermal Contact while Bathing
cyanide	ND	2.2E–09	7.0E–15	5.2E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.0E–05	3.4E–06	7.9E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	3.3E–06	1.2E–06	8.2E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.7E–06	3.1E–07	2.3E–08	1.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.4E–08	2.9E–09	6.2E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	5.1E–06	6.4E–07	2.7E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.6E–07	2.7E–07	1.7E–06	NA	NA	NA	NA	NA	NA	2.6E–01	1.3E–01	3.1E–02	2.0E–01	ND	2.3E–03
cobalt	7.0E–05	1.7E–08	5.3E–08	1.2E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.2E–07	4.2E–07	1.5E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	2.7E–07	1.1E–07	2.0E–06	NA	NA	NA	NA	NA	NA	2.5E–01	1.3E–01	2.9E–02	5.5E–01	ND	9.8E–03
manganese	1.5E–04	1.5E–06	1.5E–07	3.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
mercury	6.2E–09	7.6E–08	2.7E–06	1.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.8E–07	2.1E–07	1.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	6.1E–07	2.6E–07	1.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	4.1E–08	5.0E–08	3.1E–07	NA	NA	NA	NA	NA	NA	1.5E–02	2.2E–02	1.1E–02	6.6E–02	ND	3.8E–05
silver	ND	6.2E–07	4.3E–07	6.6E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.8E–07	2.1E–06	2.5E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	2.1E–05	2.1E–07	1.5E–05	2.1E–02	1.3E–03	8.8E–02	4.7E–02	9.4E–02	NA	1.4E–01	3.7E–02	2.5E–04	1.8E–02	ND	5.6E–03
vanadium	ND	2.6E–07	9.1E–08	1.7E–08	NA	NA	NA	NA	NA	NA	3.5E–02	1.4E–02	1.5E–03	2.9E–04	ND	1.4E–03
zinc	ND	4.0E–06	4.3E–05	1.0E–04	NA	NA	NA	NA	NA	NA	3.9E–02	2.2E+00	1.2E+01	2.8E+01	ND	1.9E–04
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	2.1E–11	1.7E–12	2.2E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.8E–13	2.8E–17	2.2E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E–14	4.3E–12	3.7E–17	4.4E–16	NA	NA	NA	NA	NA	NA	1.0E–03	2.6E–04	6.8E–10	9.0E–09	5.6E–04	2.8E–05
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.6E–04	5.2E–07	3.9E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	3.5E–11	2.2E–10	1.6E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.1E–11	1.3E–12	1.0E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E–01	4.6E–02	ND	ND	ND	3.5E–04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7E–01	1.5E–01	ND	ND	ND	1.1E–03
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E–04	2.1E–04	5.6E–05	2.4E–04	2.1E–02	1.3E–03	8.8E–02	4.7E–02	9.4E–02		1.5E+00	2.7E+00	1.2E+01	2.8E+01	5.6E–04	2.1E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12e
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	6.8E–09	2.2E–14	1.6E–13	7.6E–01	2.7E–06	2.0E–05	2.7E–04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.3E–05	4.4E–06	1.0E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	5.2E–06	1.9E–06	1.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	4.4E–06	8.2E–07	6.1E–08	3.4E–06	3.7E–02	3.8E–03	2.1E–01	2.2E–02	2.4E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.6E–08	7.6E–09	1.6E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.0E–05	1.3E–06	5.4E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.9E–07	6.7E–07	4.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	1.5E–04	3.7E–08	1.2E–07	2.7E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.6E–06	1.6E–06	5.7E–06	1.6E–01	1.7E–01	6.1E–01	5.8E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	5.9E–07	2.3E–07	4.4E–06	2.5E–01	1.5E–01	2.8E+00	4.0E–03	8.1E–03	NA	NA	NA	NA	NA	NA	NA
manganese	3.0E–04	3.1E–06	3.2E–07	6.5E–06	7.8E–01	1.0E–01	2.1E+00	1.4E–01	4.6E–01	NA	NA	NA	NA	NA	NA	NA
mercury	2.0E–08	2.5E–07	8.8E–06	3.7E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.9E–07	6.8E–07	4.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.3E–06	5.6E–07	2.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	9.3E–08	1.1E–07	7.0E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.2E–06	8.4E–07	1.3E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	6.8E–07	5.3E–06	6.2E–06	2.7E–03	2.4E–01	2.8E–01	5.8E–02	5.8E–03	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	5.3E–05	5.5E–07	3.9E–05	3.9E–02	2.3E–03	1.6E–01	8.6E–02	1.7E–01	NA	NA	NA	NA	NA	NA	NA
vanadium	ND	6.3E–07	2.2E–07	4.1E–08	1.7E–02	1.4E–02	2.6E–03	4.9E–02	9.8E–03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.7E–05	1.8E–04	4.3E–04	5.0E–01	5.4E+00	1.3E+01	4.9E–03	2.0E–03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	9.0E–11	7.3E–12	9.6E–11	1.4E–04	2.7E–05	3.5E–04	4.8E–05	2.1E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.7E–12	1.7E–16	1.4E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	7.5E–04	1.3E–04	9.4E–04	1.2E–04	8.7E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.2E–13	4.0E–11	3.5E–16	4.1E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.3E–04	1.6E–04	1.2E–03	1.2E–04	8.3E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.3E–04	4.1E–07	3.1E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.7E–10	1.1E–09	8.0E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	8.9E–11	3.9E–12	2.9E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.6E–04	2.4E–04	2.1E–04	7.1E–04	2.6E+00	6.0E+00	1.9E+01	3.7E–01	6.6E–01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–12f
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, CURRENT LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	6.8E–09	2.2E–14	1.6E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.1E–05	3.4E–06	8.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	3.9E–06	1.4E–06	1.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	2.9E–06	5.4E–07	4.0E–08	2.2E–06	NA	NA	NA	NA	NA	NA	8.3E–02	8.8E–02	3.3E–03	1.8E–01	ND	1.8E–04
beryllium	ND	2.3E–08	4.8E–09	1.0E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.4E–06	8.0E–07	3.4E–05	NA	NA	NA	NA	NA	NA	2.2E–01	1.3E+00	8.3E–02	3.6E+00	ND	8.7E–03
chromium vi	ND	5.7E–07	4.3E–07	2.7E–06	NA	NA	NA	NA	NA	NA	9.4E–01	4.8E–01	1.1E–01	7.4E–01	ND	8.3E–03
cobalt	1.1E–04	2.6E–08	8.0E–08	1.9E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.2E–06	1.2E–06	4.1E–06	NA	NA	NA	NA	NA	NA	1.2E–02	4.3E–02	2.1E–02	7.5E–02	ND	ND
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	5.0E–07	2.0E–07	3.7E–06	NA	NA	NA	NA	NA	NA	2.1E–01	1.1E–01	2.4E–02	4.6E–01	ND	8.3E–03
manganese	2.2E–04	2.2E–06	2.3E–07	4.7E–06	NA	NA	NA	NA	NA	NA	1.4E–01	1.6E–01	8.4E–03	1.7E–01	ND	9.0E–03
mercury	1.3E–08	1.5E–07	5.6E–06	2.3E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.7E–07	4.3E–07	2.5E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	8.4E–07	3.6E–07	1.4E–06	NA	NA	NA	NA	NA	NA	2.1E–01	6.0E–01	1.2E–01	4.5E–01	ND	4.2E–04
selenium	ND	5.6E–08	6.8E–08	4.2E–07	NA	NA	NA	NA	NA	NA	3.6E–02	5.1E–02	2.5E–02	1.5E–01	ND	8.9E–05
silver	ND	8.8E–07	6.1E–07	9.5E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.6E–07	2.7E–06	3.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	4.2E–05	4.3E–07	3.0E–05	2.1E–02	1.3E–03	8.8E–02	4.7E–02	9.4E–02	NA	1.9E–02	5.1E–03	3.4E–05	2.4E–03	ND	7.7E–04
vanadium	ND	4.2E–07	1.5E–07	2.7E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	5.9E–06	6.3E–05	1.5E–04	NA	NA	NA	NA	NA	NA	1.1E–03	6.0E–02	3.2E–01	7.5E–01	ND	5.1E–06
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.0E–11	2.4E–12	3.1E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.3E–13	4.3E–17	3.4E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E–14	9.1E–12	7.8E–17	9.3E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.6E–05	1.2E–07	8.6E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	5.3E–11	3.3E–10	2.4E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	5.7E–11	2.5E–12	1.9E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.1E–02	2.4E–02	ND	ND	ND	1.8E–04
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7E–01	4.4E–02	ND	ND	ND	3.4E–04
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.3E–04	1.1E–04	8.1E–05	3.4E–04	2.1E–02	1.3E–03	8.8E–02	4.7E–02	9.4E–02		2.1E+00	3.0E+00	7.1E–01	6.6E+00	0.0E+00	3.6E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII-13a
ILCRs FOR GREAT MIAMI RIVER USER
GREAT MIAMI RIVER OUTFALL, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides									
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+5d}	1.6E-05	3.0E-06	1.4E-07	1.0E-06	3.6E-07	NA	9.2E-09	NA	9.5E-06
Ra_{228+1d}	2.0E-05	2.9E-06	5.4E-08	4.0E-07	NA	NA	1.1E-08	NA	1.1E-05
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	2.5E-07	3.9E-08	2.0E-11	7.0E-11	NA	NA	1.4E-10	NA	8.8E-08
Th_{232}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	7.1E-07	1.1E-07	1.6E-09	2.0E-08	NA	NA	3.9E-10	NA	1.6E-08
$U_{235/236}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	1.1E-06	1.7E-07	2.5E-09	3.1E-08	NA	NA	6.1E-10	NA	2.5E-08
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.8E-05	6.2E-06	2.0E-07	1.5E-06	3.6E-07		2.1E-08		2.1E-05
Chemicals									
arsenic	1.4E-04	3.0E-05	1.2E-05	1.5E-06	ND	4.2E-07	7.7E-08	9.0E-08	7.1E-05
beryllium	9.1E-04	1.8E-04	3.1E-05	1.1E-07	ND	2.6E-04	5.1E-07	5.6E-05	2.0E-04
cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TBP for PAHs):	1.0E-03	2.1E-04	4.3E-05	1.6E-06	0.0E+00	2.6E-04	5.8E-07	5.6E-05	2.7E-04
Sum Chem (BaP for PAHs):	1.0E-03	2.1E-04	4.3E-05	1.6E-06	0.0E+00	2.6E-04	5.8E-07	5.6E-05	2.7E-04
TOTAL ALL (TBP Approach):	1.1E-03	2.2E-04	4.3E-05	3.1E-06	3.6E-07	2.6E-04	6.0E-07	5.6E-05	2.9E-04
TOTAL ALL (BaP Approach):	1.1E-03	2.2E-04	4.3E-05	3.1E-06	3.6E-07	2.6E-04	6.0E-07	5.6E-05	2.9E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-13b
ILCRs FOR GREAT MIAMI RIVER USER
CONFLUENCE WITH PADDYS RUN, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides									
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pb_{210+2d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239}	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{224+5d}	1.5E-05	2.7E-06	1.3E-07	9.2E-07	3.3E-07	NA	8.2E-09	NA	8.5E-06
Ra_{228+1d}	2.3E-05	3.4E-06	6.2E-08	4.6E-07	NA	NA	1.3E-08	NA	1.3E-05
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tc_{99}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{228+7d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	4.5E-07	6.8E-08	3.5E-11	1.2E-10	NA	NA	2.5E-10	NA	1.5E-07
Th_{232}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	6.3E-07	9.5E-08	1.4E-09	1.8E-08	NA	NA	3.5E-10	NA	1.5E-08
$U_{235/236}$	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{238+2d}	8.2E-07	1.3E-07	1.9E-09	2.3E-08	NA	NA	4.6E-10	NA	1.9E-08
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.9E-05	6.3E-06	1.9E-07	1.4E-06	3.3E-07		2.2E-08		2.2E-05
Chemicals									
arsenic	2.9E-04	6.3E-05	2.5E-05	3.1E-06	ND	8.7E-07	1.6E-07	1.9E-07	1.5E-04
beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND
chromium vi	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	6.1E-05	7.1E-06	4.2E-07	1.1E-06	ND	1.6E-04	3.4E-08	1.1E-05	4.3E-03
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.0E-07	2.4E-07	1.1E-10	1.4E-10	1.2E-06	1.2E-07	3.4E-10	8.5E-09	2.7E-07
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.5E-04	7.0E-05	2.6E-05	4.2E-06	1.2E-06	1.6E-04	1.9E-07	1.1E-05	4.5E-03
Sum Chem (BaP for PAHs):	3.5E-04	7.0E-05	2.6E-05	4.2E-06	1.2E-06	1.6E-04	1.9E-07	1.1E-05	4.5E-03
TOTAL ALL (TEF Approach):	3.9E-04	7.7E-05	2.6E-05	5.6E-06	1.6E-06	1.6E-04	2.2E-07	1.1E-05	4.5E-03
TOTAL ALL (BaP Approach):	3.9E-04	7.7E-05	2.6E-05	5.6E-06	1.6E-06	1.6E-04	2.2E-07	1.1E-05	4.5E-03

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-14a
HAZARD QUOTIENTS FOR GREAT MIAMI RIVER USER
GREAT MIAMI RIVER OUTFALL, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Toxicants	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
cyanide	8.4E-03	3.1E-03	1.3E-08	1.6E-08	ND	ND	4.7E-06	ND	1.1E-04
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND
antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	2.6E-01	5.8E-02	2.3E-02	2.8E-03	ND	8.0E-04	1.5E-04	1.7E-04	1.3E-01
barium	4.0E-02	2.4E-02	2.0E-03	1.9E-02	ND	1.2E-04	2.2E-05	2.7E-05	ND
beryllium	4.2E-02	8.3E-03	1.4E-03	5.2E-06	ND	1.2E-02	2.4E-05	2.6E-03	9.3E-03
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	1.5E-01	5.1E-01	7.2E-02	5.2E-01	ND	8.3E-03	8.1E-05	1.8E-03	1.4E-01
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
magnesium	9.2E-02	2.8E-02	1.4E-02	4.5E-02	ND	5.3E-03	5.1E-05	1.1E-03	ND
manganese	1.8E-02	1.2E-02	1.4E-03	4.9E-03	ND	1.7E-03	9.8E-06	3.6E-04	ND
mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.3E-02	3.5E-03	5.2E-05	6.4E-04	ND	1.3E-03	1.3E-05	2.8E-04	5.3E-07
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	ND	ND	ND	ND	ND	ND	ND	ND	ND
nitrate	6.3E-02	9.4E-03	ND	ND	ND	1.8E-04	3.5E-05	3.9E-05	ND
fluoride	1.4E-01	2.0E-02	ND	ND	ND	3.9E-04	7.6E-05	8.4E-05	ND
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.3E-01	6.8E-01	1.1E-01	6.0E-01	0.0E+00	3.0E-02	4.6E-04	6.5E-03	2.8E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-14b
HAZARD QUOTIENTS FOR GREAT MIAMI RIVER USER CONFLUENCE WITH PADDYS RUN, CURRENT LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Toxicants	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
cyanide	2.9E-02	1.1E-02	4.5E-08	5.8E-08	ND	ND	1.6E-05	ND	3.7E-04
aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	5.5E-01	1.2E-01	4.8E-02	5.9E-03	ND	1.7E-03	3.1E-04	3.5E-04	2.8E-01
barium	8.9E-02	5.5E-02	4.6E-03	4.5E-02	ND	2.8E-04	5.0E-05	6.0E-05	ND
beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	4.9E-01	1.7E+00	2.4E-01	1.8E+00	ND	2.8E-02	2.7E-04	6.1E-03	4.6E-01
chromium vi	1.4E+00	4.3E-01	2.3E-01	2.5E-01	ND	1.8E-02	8.1E-04	3.9E-03	2.7E-01
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	2.3E-02	4.6E-02	5.1E-02	3.1E-02	ND	ND	1.3E-05	ND	5.3E-02
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
magnesium	1.3E-01	4.0E-02	2.1E-02	6.7E-02	ND	7.7E-03	7.5E-05	1.6E-03	ND
manganese	1.1E-01	7.4E-02	8.8E-03	3.1E-02	ND	1.1E-02	6.1E-05	2.2E-03	ND
mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	3.5E-02	5.9E-02	2.6E-02	1.7E-02	ND	1.0E-04	2.0E-05	2.2E-05	1.9E-02
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	2.6E-02	3.9E-03	5.8E-05	7.2E-04	ND	1.5E-03	1.4E-05	3.1E-04	5.9E-07
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	1.0E-02	3.3E-01	4.0E+00	1.6E+00	ND	7.1E-05	5.7E-06	1.5E-05	5.6E-03
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	2.2E-01	2.5E-02	1.5E-03	3.9E-03	ND	5.9E-01	1.2E-04	3.8E-02	1.5E+01
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	2.7E-03	4.0E-04	9.9E-01	1.4E+00	ND	5.3E+00	1.5E-06	3.5E-01	1.8E+02
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.2E+00	2.9E+00	5.6E+00	5.2E+00	0.0E+00	6.0E+00	1.8E-03	4.0E-01	2.0E+02

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15a
ILCRs FOR GROUNDSKEEPER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	1.2E-11	1.6E-08	NA	6.2E-06
Np_{237+1d}	8.1E-09	5.0E-08	NA	5.4E-07
Pu_{238}	3.1E-07	5.4E-07	NA	3.8E-10
$Pu_{239/240}$	4.2E-08	1.6E-07	NA	1.0E-10
Ra_{226+8d}	1.1E-06	1.2E-06	NA	5.0E-05
Ru_{106}	2.8E-10	NA	NA	NA
Sr_{90+1d}	8.6E-11	3.5E-08	NA	ND
Tc_{99}	6.2E-11	4.4E-09	NA	1.1E-11
Th_{230}	1.0E-05	5.2E-07	NA	1.2E-08
$Th_{232+10d}$	2.9E-06	2.9E-06	NA	7.8E-04
U_{234}	2.3E-05	4.4E-06	NA	4.5E-08
$U_{235/236}$	1.9E-06	3.7E-07	NA	3.0E-05
U_{238+2d}	5.1E-05	9.7E-06	NA	6.9E-05
Rn_{222+4d}	1.9E-05	NA	NA	NA
Total Radionuclides	1.1E-04	2.0E-05		9.4E-04
Chemicals				
arsenic	7.6E-08	6.6E-06	4.0E-07	NA
beryllium	4.7E-09	1.8E-06	1.8E-06	NA
cadmium	1.3E-08	ND	ND	NA
chromium vi	4.4E-07	ND	ND	NA
nickel	1.0E-08	ND	ND	NA
benzene	1.5E-16	2.7E-11	8.5E-13	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-09	3.6E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	1.0E-09	2.0E-08	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	2.9E-15	2.0E-11	3.4E-10	NA
1,1-dichloroethene	NA	8.7E-10	1.7E-08	NA
1,2-dichloroethane	NA	1.8E-12	3.5E-11	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	7.4E-15	4.7E-11	8.1E-10	NA
n-nitrosodiphenylamine	ND	7.2E-10	1.4E-08	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.2E-09	4.0E-10	1.0E-08	NA
trichloroethene	1.9E-08	8.1E-11	1.4E-09	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	2.6E-11	5.3E-08	5.3E-08	NA
benzo(a)pyrene	2.0E-10	2.9E-06	2.9E-06	NA
benzo(b)fluoranthene	2.6E-11	3.8E-07	3.8E-07	NA
benzo(k)fluoranthene	8.7E-12	1.3E-07	1.3E-07	NA
chrysene	1.8E-13	3.3E-09	3.3E-09	NA
dibenzo(a,h)anthracene	5.9E-11	9.1E-07	9.1E-07	NA
indeno(1,2,3-cd)pyrene	3.7E-11	6.5E-07	6.5E-07	NA
aroclor-1254	ND	6.1E-06	2.8E-05	NA
aroclor-1260	ND	1.5E-06	6.7E-06	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	4.2E-14	NA	NA	NA
dieldrin	6.8E-13	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	4.8E-09	1.7E-08	NA
octachlorodibenzo-p-dioxin	6.9E-13	1.6E-09	5.7E-09	NA
octachlorodibenzofuran	1.9E-13	1.9E-09	6.7E-09	NA
Sum Chem (TEF for PAHs):	5.7E-07	2.1E-05	4.2E-05	
Sum Chem (BaP for PAHs):	5.7E-07	2.9E-05	5.0E-05	
TOTAL ALL (TEF Approach):	1.1E-04	4.1E-05	4.2E-05	9.4E-04
TOTAL ALL (BaP Approach):	1.1E-04	4.9E-05	5.0E-05	9.4E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15b
ILCRs FOR GROUNDSKEEPER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	1.4E-12	1.3E-08	NA	5.3E-06
Np_{237+1d}	5.4E-10	1.1E-07	NA	1.2E-06
Pu_{238}	1.7E-08	NA	NA	NA
$Pu_{239/240}$	4.1E-09	NA	NA	NA
Ra_{226+8d}	1.1E-07	NA	NA	NA
Ru_{106}	3.6E-11	NA	NA	NA
Sr_{90+1d}	7.8E-12	3.1E-08	NA	ND
Tc_{99}	7.8E-12	1.3E-09	NA	3.3E-12
Th_{230}	4.7E-07	1.4E-08	NA	3.2E-10
$Th_{232+10d}$	1.9E-07	NA	NA	NA
U_{234}	1.2E-06	4.0E-08	NA	4.1E-10
$U_{235/236}$	1.0E-07	7.0E-09	NA	5.8E-07
U_{238+2d}	2.9E-06	8.9E-08	NA	6.3E-07
Rn_{222+4d}	3.0E-06	NA	NA	NA
Total Radionuclides	8.0E-06	3.1E-07		7.7E-06
Chemicals				
arsenic	2.0E-08	NA	NA	NA
beryllium	1.2E-09	2.4E-06	2.4E-06	NA
cadmium	4.8E-09	ND	ND	NA
chromium vi	1.1E-07	ND	ND	NA
nickel	2.9E-09	ND	ND	NA
benzene	5.1E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.9E-09	7.4E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	6.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.7E-16	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.5E-08	NA	NA	NA
trichloroethene	8.8E-08	1.5E-11	2.7E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	3.3E-12	1.8E-09	1.8E-09	NA
benzo(a)pyrene	2.7E-11	NA	NA	NA
benzo(b)fluoranthene	4.1E-12	1.8E-08	1.8E-08	NA
benzo(k)fluoranthene	1.5E-12	8.0E-09	8.0E-09	NA
chrysene	2.8E-14	2.0E-10	2.0E-10	NA
dibenzo(a,h)anthracene	8.5E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.9E-12	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	5.8E-15	NA	NA	NA
dieldrin	5.7E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.4E-13	NA	NA	NA
octachlorodibenzofuran	6.5E-14	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E-07	2.4E-06	2.4E-06	
Sum Chem (BaP for PAHs):	2.4E-07	2.8E-06	2.8E-06	
TOTAL ALL (TEF Approach):	8.2E-06	2.7E-06	2.4E-06	7.7E-06
TOTAL ALL (BaP Approach):	8.2E-06	3.1E-06	2.8E-06	7.7E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15c
ILCRs FOR GROUNDSKEEPER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	5.1E-12	1.4E-08	NA	5.5E-06
Np_{237+1d}	1.8E-09	NA	NA	NA
Pu_{238}	5.8E-08	NA	NA	NA
$Pu_{239/240}$	1.2E-08	3.7E-08	NA	2.4E-11
Ra_{226+8d}	1.4E-06	2.1E-07	NA	8.8E-06
Ru_{106}	5.2E-11	1.5E-08	NA	ND
Sr_{90+1d}	5.3E-11	5.8E-08	NA	ND
Tc_{99}	7.0E-11	NA	NA	NA
Th_{230}	1.3E-05	1.6E-08	NA	3.6E-10
$Th_{232+10d}$	1.5E-06	2.4E-06	NA	6.7E-04
U_{234}	7.1E-06	2.1E-08	NA	2.1E-10
$U_{235/236}$	5.0E-07	1.2E-07	NA	1.0E-05
U_{238+2d}	1.4E-05	4.7E-08	NA	3.3E-07
Rn_{222+4d}	1.1E-05	ND	NA	ND
Total Radionuclides	4.8E-05	3.0E-06		6.9E-04
Chemicals				
arsenic	3.8E-08	NA	NA	NA
beryllium	2.6E-09	1.5E-06	1.5E-06	NA
cadmium	8.1E-09	ND	ND	NA
chromium vi	2.3E-07	ND	ND	NA
nickel	5.4E-09	ND	ND	NA
benzene	2.2E-16	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.7E-10	1.2E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.0E-15	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	9.1E-15	8.6E-11	1.5E-09	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	3.5E-09	3.2E-10	8.2E-09	NA
trichloroethene	2.1E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.9E-11	1.4E-08	1.4E-08	NA
benzo(a)pyrene	1.6E-10	7.3E-07	7.3E-07	NA
benzo(b)fluoranthene	1.9E-11	3.1E-07	3.1E-07	NA
benzo(k)fluoranthene	8.5E-12	2.3E-08	2.3E-08	NA
chrysene	1.2E-13	1.5E-09	1.5E-09	NA
dibenzo(a,h)anthracene	5.3E-11	1.0E-07	1.0E-07	NA
indeno(1,2,3-cd)pyrene	2.8E-11	1.0E-07	1.0E-07	NA
aroclor-1254	ND	3.9E-08	1.8E-07	NA
aroclor-1260	ND	3.6E-07	1.7E-06	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	8.7E-15	NA	NA	NA
dieldrin	1.4E-13	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.8E-13	NA	NA	NA
octachlorodibenzofuran	2.8E-13	NA	NA	NA
Sum Chem (TEF for PAHs):	3.1E-07	3.1E-06	4.6E-06	
Sum Chem (BaP for PAHs):	3.1E-07	6.5E-06	7.9E-06	
TOTAL ALL (TEF Approach):	4.8E-05	6.1E-06	4.6E-06	6.9E-04
TOTAL ALL (BaP Approach):	4.8E-05	9.4E-06	7.9E-06	6.9E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15d
ILCRs FOR GROUNDSKEEPER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.3E-12	9.0E-09	NA	3.5E-06
Np_{237+1d}	1.1E-09	NA	NA	NA
Pu_{238}	7.8E-08	NA	NA	NA
$Pu_{239/240}$	9.0E-09	8.6E-08	NA	5.5E-11
Ra_{226+8d}	2.1E-07	NA	NA	NA
Ru_{106}	2.6E-11	NA	NA	NA
Sr_{90+1d}	1.9E-11	4.8E-08	NA	ND
Tc_{99}	2.1E-11	NA	NA	NA
Th_{230}	3.3E-06	1.5E-08	NA	3.3E-10
$Th_{232+10d}$	8.3E-07	NA	NA	NA
U_{234}	5.5E-06	6.7E-08	NA	6.9E-10
$U_{235/236}$	4.1E-07	8.0E-09	NA	6.6E-07
U_{238+2d}	1.2E-05	8.2E-08	NA	5.8E-07
Rn_{222+4d}	1.3E-06	NA	NA	NA
Total Radionuclides	2.3E-05	3.1E-07		4.8E-06
Chemicals				
arsenic	2.1E-08	NA	NA	NA
beryllium	1.4E-09	2.1E-06	2.1E-06	NA
cadmium	3.4E-09	ND	ND	NA
chromium vi	1.1E-07	ND	ND	NA
nickel	2.5E-09	ND	ND	NA
benzene	2.7E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-10	6.4E-11	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	5.3E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-15	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	8.4E-10	5.5E-11	1.4E-09	NA
trichloroethene	5.0E-09	7.7E-12	1.4E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	4.7E-12	NA	NA	NA
benzo(a)pyrene	3.5E-11	NA	NA	NA
benzo(b)fluoranthene	4.5E-12	NA	NA	NA
benzo(k)fluoranthene	1.6E-12	NA	NA	NA
chrysene	3.2E-14	NA	NA	NA
dibenzo(a,h)anthracene	1.1E-11	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.5E-12	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	5.0E-15	NA	NA	NA
dieldrin	1.1E-13	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.6E-14	NA	NA	NA
octachlorodibenzofuran	3.5E-14	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E-07	2.1E-06	2.1E-06	
Sum Chem (BaP for PAHs):	1.5E-07	2.1E-06	2.1E-06	
TOTAL ALL (TEF Approach):	2.4E-05	2.4E-06	2.1E-06	4.8E-06
TOTAL ALL (BaP Approach):	2.4E-05	2.4E-06	2.1E-06	4.8E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15e
ILCRs FOR GROUNDSKEEPER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.3E-12	1.3E-08	NA	5.3E-06
Np_{237+1d}	1.3E-09	NA	NA	NA
Pu_{238}	9.3E-08	NA	NA	NA
$Pu_{239/240}$	1.0E-08	NA	NA	NA
Ra_{226+8d}	1.8E-07	NA	NA	NA
Ru_{106}	4.2E-11	NA	NA	NA
Sr_{90+1d}	1.8E-11	3.6E-08	NA	ND
Tc_{99}	1.2E-11	1.1E-09	NA	2.7E-12
Th_{230}	3.4E-06	1.9E-08	NA	4.3E-10
$Th_{232+10d}$	7.0E-07	NA	NA	NA
U_{234}	5.9E-06	1.9E-07	NA	2.0E-09
$U_{235/236}$	4.7E-07	2.5E-08	NA	2.0E-06
U_{238+2d}	1.3E-05	6.3E-07	NA	4.4E-06
Rn_{222+4d}	1.0E-06	NA	NA	NA
Total Radionuclides	2.5E-05	9.2E-07		1.2E-05
Chemicals				
arsenic	2.4E-08	NA	NA	NA
beryllium	1.4E-09	2.6E-06	2.6E-06	NA
cadmium	3.4E-09	ND	ND	NA
chromium vi	1.1E-07	NA	NA	NA
nickel	2.5E-09	NA	NA	NA
benzene	2.2E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.4E-09	8.8E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	4.9E-11	9.4E-10	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	3.6E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.0E-15	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	1.0E-09	3.6E-11	9.3E-10	NA
trichloroethene	6.3E-09	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	4.5E-12	2.6E-09	2.6E-09	NA
benzo(a)pyrene	3.3E-11	1.6E-07	1.6E-07	NA
benzo(b)fluoranthene	4.2E-12	2.1E-08	2.1E-08	NA
benzo(k)fluoranthene	1.4E-12	1.0E-08	1.0E-08	NA
chrysene	3.3E-14	2.2E-10	2.2E-10	NA
dibenzo(a,h)anthracene	9.4E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.4E-12	3.5E-08	3.5E-08	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	5.5E-15	NA	NA	NA
dieldrin	1.2E-13	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.3E-14	NA	NA	NA
octachlorodibenzofuran	2.7E-14	NA	NA	NA
Sum Chem (TEF for PAHs):	1.4E-07	2.8E-06	2.8E-06	
Sum Chem (BaP for PAHs):	1.4E-07	3.3E-06	3.3E-06	
TOTAL ALL (TEF Approach):	2.5E-05	3.7E-06	2.8E-06	1.2E-05
TOTAL ALL (BaP Approach):	2.5E-05	4.2E-06	3.3E-06	1.2E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15f
ILCRs FOR GROUNDSKEEPER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.1E-12	1.9E-08	NA	7.5E-06
Np_{237+1d}	1.2E-09	1.5E-07	NA	1.6E-06
Pu_{238}	2.3E-08	4.1E-08	NA	2.9E-11
$Pu_{239/240}$	5.2E-09	4.3E-08	NA	2.8E-11
Ra_{226+8d}	2.2E-07	1.7E-05	NA	7.1E-04
Ru_{106}	1.2E-10	1.8E-08	NA	ND
Sr_{90+1d}	1.4E-11	3.4E-08	NA	ND
Tc_{99}	9.4E-12	9.7E-10	NA	2.5E-12
Th_{230}	1.2E-06	2.9E-07	NA	6.6E-09
$Th_{232+10d}$	2.9E-07	2.7E-07	NA	7.4E-05
U_{234}	1.6E-06	3.3E-07	NA	3.4E-09
$U_{235/236}$	1.5E-07	1.4E-08	NA	1.2E-06
U_{238+2d}	3.7E-06	1.3E-06	NA	8.8E-06
Rn_{222+4d}	3.2E-06	NA	NA	NA
Total Radionuclides	1.0E-05	1.9E-05		8.1E-04
Chemicals				
arsenic	7.3E-08	6.1E-06	3.7E-07	NA
beryllium	2.1E-09	1.1E-06	1.1E-06	NA
cadmium	9.7E-09	ND	ND	NA
chromium vi	2.1E-07	ND	ND	NA
nickel	5.7E-09	ND	ND	NA
benzene	3.1E-17	3.0E-11	9.7E-13	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-08	4.6E-09	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	4.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.5E-15	7.3E-11	1.3E-09	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	7.0E-09	NA	NA	NA
trichloroethene	4.2E-08	2.3E-11	4.1E-10	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	4.1E-12	5.0E-08	5.0E-08	NA
benzo(a)pyrene	3.2E-11	2.5E-06	2.5E-06	NA
benzo(b)fluoranthene	3.9E-12	7.5E-07	7.5E-07	NA
benzo(k)fluoranthene	1.6E-12	8.1E-09	8.1E-09	NA
chrysene	2.8E-14	2.8E-09	2.8E-09	NA
dibenzo(a,h)anthracene	9.0E-12	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.6E-12	2.8E-08	2.8E-08	NA
aroclor-1254	ND	3.8E-08	1.7E-07	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.1E-14	NA	NA	NA
dieldrin	9.8E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.3E-13	4.7E-08	1.6E-07	NA
octachlorodibenzofuran	4.0E-14	NA	NA	NA
Sum Chem (TEF for PAHs):	3.5E-07	1.1E-05	5.2E-06	
Sum Chem (BaP for PAHs):	3.5E-07	1.7E-05	1.2E-05	
TOTAL ALL (TEF Approach):	1.1E-05	3.0E-05	5.2E-06	8.1E-04
TOTAL ALL (BaP Approach):	1.1E-05	3.7E-05	1.2E-05	8.1E-04

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-15g
ILCRs FOR GROUNDSKEEPER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	2.4E-12	NA	NA	NA
Np_{237+1d}	1.2E-09	NA	NA	NA
Pu_{238}	7.3E-08	NA	NA	NA
$Pu_{239/240}$	9.0E-09	2.4E-07	NA	1.6E-10
Ra_{226+8d}	NA	NA	NA	NA
Ru_{106}	2.9E-11	NA	NA	NA
Sr_{90+1d}	2.4E-11	3.8E-08	NA	ND
Tc_{99}	3.8E-11	NA	NA	NA
Th_{230}	4.3E-06	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA
U_{234}	5.9E-06	3.6E-08	NA	3.7E-10
$U_{235/234}$	4.4E-07	8.1E-09	NA	6.7E-07
U_{238+2d}	1.2E-05	4.7E-08	NA	3.3E-07
Rn_{222+4d}	1.9E-06	NA	NA	NA
Total Radionuclides	2.4E-05	3.7E-07		1.0E-06
Chemicals				
arsenic	3.1E-08	8.1E-06	4.9E-07	NA
beryllium	1.9E-09	1.1E-06	1.1E-06	NA
cadmium	5.3E-09	NA	NA	NA
chromium vi	1.7E-07	ND	ND	NA
nickel	3.6E-09	NA	NA	NA
benzene	3.5E-17	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.0E-10	7.8E-11	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	6.2E-16	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.9E-15	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	8.9E-10	NA	NA	NA
trichloroethene	5.5E-09	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA
benzo(a)pyrene	4.2E-11	NA	NA	NA
benzo(b)fluoranthene	5.2E-12	NA	NA	NA
benzo(k)fluoranthene	2.0E-12	NA	NA	NA
chrysene	3.7E-14	NA	NA	NA
dibenzo(a,h)anthracene	1.3E-11	NA	NA	NA
indeno(1,2,3-cd)pyrene	7.6E-12	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	5.0E-15	NA	NA	NA
dieldrin	1.1E-13	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.3E-14	NA	NA	NA
octachlorodibenzofuran	4.3E-14	NA	NA	NA
Sum Chem (TEF for PAHs):	2.2E-07	9.2E-06	1.6E-06	
Sum Chem (BaP for PAHs):	2.2E-07	9.2E-06	1.6E-06	
TOTAL ALL (TEF Approach):	2.5E-05	9.6E-06	1.6E-06	1.0E-06
TOTAL ALL (BaP Approach):	2.5E-05	9.6E-06	1.6E-06	1.0E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16a
HAZARD QUOTIENTS FOR GROUNDSKEEPER PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	4.2E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	5.8E-02	2.2E-01	NA
arsenic	ND	3.5E-02	2.1E-03	NA
barium	1.8E-03	3.3E-03	2.1E-03	NA
beryllium	ND	2.3E-04	1.3E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	5.1E-03	5.9E-02	NA
chromium vi	ND	5.4E-03	6.8E-03	NA
cobalt	4.9E-02	1.9E-04	2.5E-04	NA
copper	ND	1.1E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	4.1E-04	4.8E-03	NA
manganese	9.5E-02	4.0E-03	7.7E-02	NA
mercury	9.9E-06	2.2E-03	4.2E-02	NA
molybdenum	ND	1.5E-03	2.3E-03	NA
nickel	ND	1.3E-03	3.6E-04	NA
selenium	ND	1.7E-04	1.2E-04	NA
silver	ND	9.3E-04	ND	NA
thallium	ND	6.4E-03	3.7E-03	NA
uranium-total	ND	3.0E-01	3.5E+00	NA
vanadium	ND	3.8E-03	4.4E-03	NA
zinc	ND	4.6E-04	1.1E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-05	3.6E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	9.0E-07	1.6E-05	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	4.4E-07	8.5E-06	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	6.6E-05	2.7E-03	NA
methylene chloride	1.5E-11	2.9E-07	5.0E-06	NA
pyrene	NA	6.8E-05	2.7E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	2.2E-06	5.5E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	1.5E-01	4.3E-01	3.9E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16b
HAZARD QUOTIENTS FOR GROUNDSKEEPER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	2.6E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	7.8E-03	3.0E-02	NA
arsenic	ND	NA	NA	NA
barium	2.9E-04	1.4E-03	8.9E-04	NA
beryllium	ND	3.1E-04	1.8E-02	NA
boron	NA	1.6E-04	1.8E-03	NA
cadmium	ND	1.7E-03	1.9E-02	NA
chromium vi	ND	2.8E-03	3.6E-03	NA
cobalt	1.4E-02	2.0E-04	2.5E-04	NA
copper	ND	4.3E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	1.8E-03	2.0E-02	NA
manganese	2.5E-02	6.6E-03	1.3E-01	NA
mercury	7.8E-07	NA	NA	NA
molybdenum	ND	2.3E-03	3.5E-03	NA
nickel	ND	8.3E-04	2.4E-04	NA
selenium	ND	1.5E-04	1.1E-04	NA
silver	ND	7.6E-04	ND	NA
thallium	ND	9.4E-03	5.4E-03	NA
uranium-total	ND	4.8E-03	5.6E-02	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.2E-04	5.1E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.9E-05	7.4E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.9E-06	1.6E-04	NA
methylene chloride	9.6E-13	NA	NA	NA
pyrene	NA	4.2E-06	1.7E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	3.9E-02	4.2E-02	2.9E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16c
HAZARD QUOTIENTS FOR GROUNDSKEEPER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	2.6E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.3E-02	4.8E-02	NA
arsenic	ND	NA	NA	NA
barium	6.8E-04	1.9E-03	1.2E-03	NA
beryllium	ND	1.9E-04	1.1E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	2.3E-03	2.7E-02	NA
chromium vi	ND	3.1E-03	3.9E-03	NA
cobalt	2.5E-02	2.3E-04	3.0E-04	NA
copper	ND	5.3E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	5.0E-03	5.8E-02	NA
manganese	5.2E-02	1.3E-02	2.4E-01	NA
mercury	3.3E-06	3.9E-04	7.5E-03	NA
molybdenum	ND	2.2E-03	3.3E-03	NA
nickel	ND	1.0E-03	2.9E-04	NA
selenium	ND	1.0E-04	7.5E-05	NA
silver	ND	2.6E-04	ND	NA
thallium	ND	9.9E-03	5.7E-03	NA
uranium-total	ND	7.8E-02	9.0E-01	NA
vanadium	ND	4.3E-03	5.0E-03	NA
zinc	ND	1.0E-03	2.3E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.7E-06	1.2E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	1.2E-05	4.8E-04	NA
methylene chloride	1.9E-11	5.3E-07	9.1E-06	NA
pyrene	NA	2.6E-05	1.1E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.7E-06	4.4E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	7.8E-02	1.4E-01	1.3E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16d
HAZARD QUOTIENTS FOR GROUNDSKEEPER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	2.9E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	2.6E-02	9.9E-02	NA
arsenic	ND	NA	NA	NA
barium	4.0E-04	NA	NA	NA
beryllium	ND	2.7E-04	1.6E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	2.7E-03	3.2E-02	NA
chromium vi	ND	2.6E-03	3.3E-03	NA
cobalt	1.3E-02	NA	NA	NA
copper	ND	3.6E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	1.8E-03	2.1E-02	NA
manganese	2.7E-02	NA	NA	NA
mercury	1.8E-06	NA	NA	NA
molybdenum	ND	1.6E-03	2.4E-03	NA
nickel	ND	7.3E-04	2.1E-04	NA
selenium	ND	1.6E-04	1.1E-04	NA
silver	ND	1.7E-03	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	4.6E-03	5.3E-02	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.0E-04	4.7E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-06	6.4E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	3.0E-12	NA	NA	NA
pyrene	NA	1.9E-06	7.7E-05	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	2.9E-07	7.5E-06	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	4.1E-02	4.3E-02	2.3E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16e
HAZARD QUOTIENTS FOR GROUNDSKEEPER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.2E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	NA	NA	NA
arsenic	ND	NA	NA	NA
barium	4.2E-04	1.4E-03	8.8E-04	NA
beryllium	ND	3.3E-04	1.9E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	1.3E-03	1.5E-02	NA
chromium vi	ND	NA	NA	NA
cobalt	1.3E-02	NA	NA	NA
copper	ND	3.6E-04	ND	NA
lead	ND	NA	NA	NA
magnesium	ND	NA	NA	NA
manganese	2.9E-02	8.7E-03	1.7E-01	NA
mercury	2.0E-06	NA	NA	NA
molybdenum	ND	NA	NA	NA
nickel	ND	NA	NA	NA
selenium	ND	NA	NA	NA
silver	ND	9.4E-05	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	3.1E-02	3.6E-01	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.8E-04	6.4E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.4E-05	8.8E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	4.6E-06	1.9E-04	NA
methylene chloride	2.1E-12	NA	NA	NA
pyrene	NA	4.9E-06	2.0E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	2.0E-07	5.0E-06	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	4.2E-02	4.4E-02	5.6E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16f
HAZARD QUOTIENTS FOR GROUNDSKEEPER WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	NA	NA	NA
aluminum	ND	ND	ND	NA
antimony	ND	7.4E-02	2.8E-01	NA
arsenic	ND	3.3E-02	2.0E-03	NA
barium	5.5E-04	9.8E-04	6.2E-04	NA
beryllium	ND	1.5E-04	8.3E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	5.7E-03	6.5E-02	NA
chromium vi	ND	3.0E-03	3.9E-03	NA
cobalt	2.6E-02	NA	NA	NA
copper	ND	4.9E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	6.2E-02	NA	NA	NA
mercury	1.6E-06	NA	NA	NA
molybdenum	ND	1.0E-03	1.5E-03	NA
nickel	ND	1.1E-03	3.2E-04	NA
selenium	ND	1.6E-04	1.2E-04	NA
silver	ND	8.8E-04	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	2.6E-02	3.0E-01	NA
vanadium	ND	3.4E-03	3.9E-03	NA
zinc	ND	2.6E-04	6.0E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-04	4.6E-05	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	6.1E-05	2.5E-03	NA
methylene chloride	3.0E-12	4.5E-07	7.7E-06	NA
pyrene	NA	8.8E-05	3.5E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	8.8E-02	1.5E-01	6.8E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VI-16g
HAZARD QUOTIENTS FOR GROUNDSKEEPER SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	9.7E-05	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.0E-02	3.8E-02	NA
arsenic	ND	4.3E-02	2.6E-03	NA
barium	5.3E-04	1.2E-03	7.9E-04	NA
beryllium	ND	1.4E-04	8.2E-03	NA
boron	NA	NA	NA	NA
cadmium	ND	NA	NA	NA
chromium vi	ND	8.4E-03	1.1E-02	NA
cobalt	1.9E-02	NA	NA	NA
copper	ND	4.8E-04	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	4.0E-02	6.5E-03	1.2E-01	NA
mercury	2.5E-06	2.1E-02	3.9E-01	NA
molybdenum	ND	1.7E-03	2.5E-03	NA
nickel	ND	NA	NA	NA
selenium	ND	NA	NA	NA
silver	ND	NA	NA	NA
thallium	ND	NA	NA	NA
uranium-total	ND	6.2E-03	7.1E-02	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.8E-04	6.5E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.0E-06	7.8E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	3.9E-12	NA	NA	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
TOTAL:	5.9E-02	9.9E-02	6.5E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17a
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE
PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	4.2E-13	8.8E-10	NA	1.1E-06	NA	NA	NA	NA	NA
Np_{237+d}	2.9E-10	2.8E-09	NA	9.7E-08	NA	NA	NA	NA	NA
Pu_{238}	1.1E-08	3.0E-08	NA	6.8E-11	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.5E-09	8.6E-09	NA	1.8E-11	NA	NA	NA	NA	NA
Ra_{226+d}	4.0E-08	6.6E-08	NA	9.0E-06	NA	NA	NA	NA	NA
Ru_{106}	1.0E-11	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	3.1E-12	1.9E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	2.2E-12	2.4E-10	NA	2.0E-12	NA	NA	NA	NA	NA
Th_{230}	3.7E-07	2.9E-08	NA	2.1E-09	NA	NA	NA	NA	NA
Th_{232+d}	1.0E-07	1.6E-07	NA	1.4E-04	NA	NA	NA	NA	NA
U_{234}	8.4E-07	2.4E-07	NA	8.1E-09	NA	NA	NA	NA	NA
$U_{235/236}$	6.7E-08	2.0E-08	NA	5.4E-06	NA	NA	NA	NA	NA
U_{238+d}	1.8E-06	5.4E-07	NA	1.2E-05	NA	NA	NA	NA	NA
Rn_{222+d}	6.9E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.0E-06	1.1E-06		1.7E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	3.3E-09	4.8E-07	2.0E-07	NA	NA	NA	NA	NA	NA
beryllium	2.1E-10	1.3E-07	1.3E-07	NA	NA	NA	NA	NA	NA
cadmium	5.8E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.9E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	4.4E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	6.4E-18	1.9E-12	4.3E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.0E-10	1.8E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	7.6E-11	1.0E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.3E-16	1.4E-12	1.7E-10	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	6.3E-11	8.4E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	1.3E-13	1.8E-11	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E-16	3.4E-12	4.1E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	5.2E-11	6.9E-09	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.4E-10	2.9E-11	5.2E-09	NA	NA	NA	NA	NA	NA
trichloroethene	8.2E-10	5.9E-12	7.2E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.2E-12	3.8E-09	3.8E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	8.7E-12	2.1E-07	2.1E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.1E-12	2.8E-08	2.8E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.8E-13	9.4E-09	9.4E-09	NA	NA	NA	NA	NA	NA
chrysene	8.0E-15	2.4E-10	2.4E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.6E-12	6.7E-08	6.7E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.6E-12	4.8E-08	4.8E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	4.5E-07	1.4E-05	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	1.1E-07	3.4E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	3.5E-10	8.3E-09	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.0E-14	1.2E-10	2.9E-09	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	8.4E-15	1.4E-10	3.4E-09	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.5E-08	1.5E-06	1.8E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	2.5E-08	2.1E-06	1.9E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	4.0E-06	2.6E-06	1.8E-05	1.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	4.0E-06	3.2E-06	1.9E-05	1.7E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17b
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	4.9E-14	7.5E-10	NA	9.5E-07	NA	NA	NA	NA	NA
Np_{237+D}	2.0E-11	6.2E-09	NA	2.2E-07	NA	NA	NA	NA	NA
Pu_{238}	6.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.5E-10	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+D}	3.8E-09	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	2.8E-13	1.8E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	2.8E-13	7.2E-11	NA	5.9E-13	NA	NA	NA	NA	NA
Th_{230}	1.7E-08	7.9E-10	NA	5.8E-11	NA	NA	NA	NA	NA
Th_{232+D}	6.9E-09	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.3E-08	2.2E-09	NA	7.4E-11	NA	NA	NA	NA	NA
$U_{235/236}$	3.7E-09	3.9E-10	NA	1.0E-07	NA	NA	NA	NA	NA
U_{238+D}	1.1E-07	4.9E-09	NA	1.1E-07	NA	NA	NA	NA	NA
Rn_{222+D}	1.1E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.9E-07	1.7E-08		1.4E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	8.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	5.1E-11	1.8E-07	1.8E-07	NA	NA	NA	NA	NA	NA
cadmium	2.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	4.7E-09	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.3E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	2.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.1E-10	3.7E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.8E-09	1.1E-12	1.4E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.4E-13	1.3E-10	1.3E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.8E-13	1.3E-09	1.3E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.5E-14	5.8E-10	5.8E-10	NA	NA	NA	NA	NA	NA
chrysene	1.2E-15	1.4E-11	1.4E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E-08	1.8E-07	1.8E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	1.1E-08	2.0E-07	2.0E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	3.0E-07	1.9E-07	1.8E-07	1.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	3.0E-07	2.2E-07	2.0E-07	1.4E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17c
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	1.8E-13	7.8E-10	NA	9.9E-07	NA	NA	NA	NA	NA
Np_{237+bd}	6.4E-11	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.1E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.5E-10	2.1E-09	NA	4.3E-12	NA	NA	NA	NA	NA
Ra_{226+bd}	5.0E-08	1.2E-08	NA	1.6E-06	NA	NA	NA	NA	NA
Ru_{106}	1.9E-12	8.3E-10	NA	ND	NA	NA	NA	NA	NA
Sr_{90+bd}	1.9E-12	3.2E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	2.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	4.5E-07	8.7E-10	NA	6.5E-11	NA	NA	NA	NA	NA
Th_{232+bd}	5.4E-08	1.4E-07	NA	1.2E-04	NA	NA	NA	NA	NA
U_{234}	2.5E-07	1.2E-09	NA	3.9E-11	NA	NA	NA	NA	NA
$U_{235/236}$	1.8E-08	6.9E-09	NA	1.8E-06	NA	NA	NA	NA	NA
U_{238+bd}	5.0E-07	2.6E-09	NA	6.0E-08	NA	NA	NA	NA	NA
Rn_{222+bd}	3.9E-07	ND	NA	ND	NA	NA	NA	NA	NA
Total Radionuclides	1.7E-06	1.7E-07		1.2E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	1.6E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.1E-10	1.1E-07	1.1E-07	NA	NA	NA	NA	NA	NA
cadmium	3.5E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.0E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	2.3E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	9.7E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.4E-11	6.0E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.0E-16	6.3E-12	7.5E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E-10	2.3E-11	4.1E-09	NA	NA	NA	NA	NA	NA
trichloroethene	9.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	8.4E-13	1.0E-09	1.0E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	7.0E-12	5.3E-08	5.3E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	8.3E-13	2.3E-08	2.3E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.7E-13	1.7E-09	1.7E-09	NA	NA	NA	NA	NA	NA
chrysene	5.3E-15	1.1E-10	1.1E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.3E-12	7.4E-09	7.4E-09	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.2E-12	7.3E-09	7.3E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	2.9E-09	9.1E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	2.6E-08	8.4E-07	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.4E-08	2.3E-07	1.1E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	1.4E-08	4.7E-07	1.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.7E-06	3.9E-07	1.1E-06	1.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.7E-06	6.4E-07	1.4E-06	1.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17d
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	8.1E-14	5.0E-10	NA	6.3E-07	NA	NA	NA	NA	NA
Np_{237+id}	4.0E-11	NA	NA	NA	NA	NA	1.7E-10	NA	6.0E-09
Pu_{238}	2.8E-09	NA	NA	NA	NA	NA	2.5E-09	NA	5.8E-12
$Pu_{239/240}$	3.2E-10	4.8E-09	NA	1.0E-11	NA	NA	1.0E-09	NA	2.1E-12
Ra_{226+bd}	7.5E-09	NA	NA	NA	NA	NA	2.9E-07	NA	4.0E-05
Ru_{106}	9.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+id}	6.7E-13	2.7E-09	NA	ND	NA	NA	4.7E-11	NA	ND
Tc_{99}	7.5E-13	NA	NA	NA	NA	NA	2.5E-11	NA	2.1E-13
Th_{230}	1.2E-07	8.1E-10	NA	6.0E-11	NA	NA	7.2E-09	NA	5.5E-10
$Th_{232+104}$	3.0E-08	NA	NA	NA	NA	NA	7.0E-09	NA	6.4E-06
U_{234}	2.0E-07	3.7E-09	NA	1.2E-10	5.2E-10	NA	3.6E-08	NA	1.2E-09
$U_{235/236}$	1.5E-08	4.5E-10	NA	1.2E-07	NA	NA	2.4E-09	NA	6.6E-07
U_{238+2d}	4.2E-07	4.5E-09	NA	1.0E-07	1.0E-09	NA	7.3E-08	NA	1.7E-06
Rn_{222+4d}	4.7E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.4E-07	1.7E-08		8.6E-07	1.6E-09		4.2E-07		4.9E-05
Chemicals									
arsenic	9.1E-10	NA	NA	NA	1.9E-07	2.9E-08	5.7E-08	4.1E-08	NA
beryllium	6.1E-11	1.5E-07	1.5E-07	NA	NA	NA	2.1E-08	2.1E-08	NA
cadmium	1.5E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	4.9E-09	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	1.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-11	3.2E-11	NA	1.6E-08	1.1E-06	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	7.4E-13	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.1E-09	9.3E-07	NA
methylene chloride	6.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.7E-11	4.0E-12	7.0E-10	NA	NA	NA	NA	NA	NA
trichloroethene	2.2E-10	5.6E-13	6.8E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	2.7E-08	1.5E-06	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	1.0E-08	5.5E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E-16	NA	NA	NA	NA	NA	1.5E-12	3.5E-10	NA
dieldrin	4.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	6.4E-09	1.5E-07	1.5E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
Sum Chem (BaP for PAHs):	6.4E-09	1.5E-07	1.5E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
TOTAL ALL (TEF Approach):	8.5E-07	1.7E-07	1.5E-07	8.6E-07	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05
TOTAL ALL (BaP Approach):	8.5E-07	1.7E-07	1.5E-07	8.6E-07	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17c
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+1d}	8.3E-14	7.5E-10	NA	9.5E-07	NA	NA	NA	NA	NA
Np_{237+1d}	4.8E-11	NA	NA	NA	9.5E-10	NA	2.8E-10	NA	1.0E-08
Pu_{239}	3.3E-09	NA	NA	NA	2.9E-10	NA	1.4E-09	NA	3.1E-12
$Pu_{239/240}$	3.8E-10	NA	NA	NA	1.2E-10	NA	5.6E-10	NA	1.2E-12
Ra_{226+8d}	6.3E-09	NA	NA	NA	8.0E-08	NA	1.5E-07	NA	2.2E-05
Ru_{106}	1.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	6.4E-13	2.0E-09	NA	ND	9.4E-10	NA	3.6E-11	NA	ND
Tc_{99}	4.5E-13	5.9E-11	NA	4.8E-13	4.2E-08	NA	2.1E-11	NA	1.8E-13
Th_{230}	1.2E-07	1.0E-09	NA	7.7E-11	2.4E-10	NA	4.4E-09	NA	3.3E-10
$Th_{232+10d}$	2.5E-08	NA	NA	NA	2.4E-10	NA	4.7E-09	NA	4.3E-06
U_{234}	2.1E-07	1.1E-08	NA	3.6E-10	2.9E-07	NA	1.9E-08	NA	6.5E-10
$U_{235/236}$	1.7E-08	1.4E-09	NA	3.6E-07	1.8E-08	NA	1.3E-09	NA	3.6E-07
U_{238+2d}	4.7E-07	3.5E-08	NA	8.0E-07	6.0E-07	NA	4.6E-08	NA	1.1E-06
Rn_{222+4d}	3.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.9E-07	5.1E-08		2.1E-06	1.0E-06		2.3E-07		2.7E-05
Chemicals									
arsenic	1.1E-09	NA	NA	NA	9.9E-08	1.5E-08	1.1E-07	7.7E-08	NA
beryllium	6.1E-11	1.9E-07	1.9E-07	NA	3.2E-09	4.7E-08	2.0E-08	2.0E-08	NA
cadmium	1.5E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	4.6E-09	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	9.8E-19	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-10	4.4E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.9E-11	1.7E-10	1.6E-13	3.5E-11	NA
carbazole	ND	3.6E-12	4.7E-10	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	6.8E-10	1.0E-09	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	1.9E-06	5.7E-06	2.2E-09	4.9E-07	NA
methylene chloride	4.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.4E-11	2.7E-12	4.7E-10	NA	NA	NA	NA	NA	NA
trichloroethene	2.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.0E-13	1.9E-10	1.9E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E-12	1.1E-08	1.1E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.9E-13	1.5E-09	1.5E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.0E-14	7.5E-10	7.5E-10	NA	NA	NA	NA	NA	NA
chrysene	1.5E-15	1.6E-11	1.6E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.8E-13	2.5E-09	2.5E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	8.9E-10	6.7E-07	1.4E-08	7.7E-07	NA
aroclor-1260	ND	NA	NA	NA	2.7E-10	1.3E-06	5.0E-09	2.7E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.4E-16	NA	NA	NA	8.9E-11	1.1E-08	NA	NA	NA
dieldrin	5.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	6.3E-09	2.0E-07	2.0E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
Sum Chem (BaP for PAHs):	6.3E-09	2.4E-07	2.4E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
TOTAL ALL (TEF Approach):	9.0E-07	2.5E-07	2.0E-07	2.1E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05
TOTAL ALL (BaP Approach):	9.0E-07	2.9E-07	2.4E-07	2.1E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-17f
ILCRs FOR RECREATIONAL USER, WILDLIFE RESERVE
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	7.5E-14	1.1E-09	NA	1.4E-06	NA	NA	NA	NA	NA
Np_{237+D}	4.4E-11	8.3E-09	NA	2.9E-07	3.6E-09	NA	2.8E-10	NA	1.0E-08
Pu_{239}	8.4E-10	2.3E-09	NA	5.2E-12	NA	NA	2.3E-10	NA	5.4E-13
$Pu_{239/240}$	1.9E-10	2.4E-09	NA	5.0E-12	4.1E-09	NA	1.3E-10	NA	2.9E-13
Ra_{226+D}	7.9E-09	9.4E-07	NA	1.3E-04	NA	NA	2.4E-08	NA	3.4E-06
Ru_{106}	4.3E-12	1.0E-09	NA	ND	NA	NA	NA	NA	NA
Sr_{90+D}	5.0E-13	1.9E-09	NA	ND	NA	NA	2.5E-11	NA	ND
Tc_{99}	3.4E-13	5.4E-11	NA	4.4E-13	NA	NA	1.5E-11	NA	1.3E-13
Th_{230}	4.3E-08	1.6E-08	NA	1.2E-09	7.1E-10	NA	1.6E-09	NA	1.2E-10
Th_{232+D}	1.0E-08	1.5E-08	NA	1.3E-05	NA	NA	2.5E-09	NA	2.3E-06
U_{234}	5.6E-08	1.8E-08	NA	6.1E-10	4.1E-07	NA	2.0E-09	NA	6.7E-11
$U_{235/236}$	5.3E-09	7.8E-10	NA	2.1E-07	1.5E-08	NA	2.5E-10	NA	6.9E-08
U_{238+D}	1.3E-07	7.0E-08	NA	1.6E-06	7.4E-07	NA	2.0E-08	NA	4.8E-07
Rn_{222+D}	1.1E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.7E-07	1.1E-06		1.5E-04	1.2E-06		5.1E-08		6.2E-06
Chemicals									
arsenic	3.2E-09	4.5E-07	1.9E-07	NA	1.2E-07	1.8E-08	1.1E-07	7.7E-08	NA
beryllium	9.2E-11	8.1E-08	8.1E-08	NA	NA	NA	1.9E-08	1.9E-08	NA
cadmium	4.2E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	9.1E-09	ND	ND	NA	ND	ND	NA	NA	NA
nickel	2.5E-10	ND	ND	NA	ND	ND	NA	NA	NA
benzene	1.3E-18	2.2E-12	4.9E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-09	2.3E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.8E-14	1.8E-11	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.6E-10	3.7E-08	NA
methylene chloride	6.3E-17	5.4E-12	6.4E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.0E-10	NA	NA	NA	2.5E-07	5.1E-06	NA	NA	NA
trichloroethene	1.8E-09	1.7E-12	2.0E-10	NA	3.9E-09	1.9E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E-13	3.6E-09	3.6E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.4E-12	1.8E-07	1.8E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.7E-13	5.5E-08	5.5E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.0E-14	5.9E-10	5.9E-10	NA	NA	NA	NA	NA	NA
chrysene	1.2E-15	2.0E-10	2.0E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.4E-13	2.0E-09	2.0E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	2.7E-09	8.7E-08	NA	NA	NA	2.0E-09	1.1E-07	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	9.0E-11	4.8E-09	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.0E-14	3.4E-09	8.2E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E-08	7.8E-07	6.8E-07		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
Sum Chem (BaP for PAHs):	1.5E-08	1.3E-06	1.2E-06		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
TOTAL ALL (TEF Approach):	3.9E-07	1.9E-06	6.8E-07	1.5E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06
TOTAL ALL (BaP Approach):	3.9E-07	2.3E-06	1.2E-06	1.5E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18a
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.1E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	1.5E-03	4.0E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	9.2E-04	3.9E-04	NA	NA	NA	NA	NA	NA
barium	2.8E-05	8.5E-05	3.7E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	6.1E-06	2.4E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.3E-04	1.1E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.4E-04	1.2E-03	NA	NA	NA	NA	NA	NA
cobalt	7.7E-04	5.1E-06	4.5E-05	NA	NA	NA	NA	NA	NA
copper	ND	3.0E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.1E-05	8.6E-04	NA	NA	NA	NA	NA	NA
manganese	1.5E-03	1.0E-04	1.4E-02	NA	NA	NA	NA	NA	NA
mercury	1.5E-07	5.7E-05	7.5E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.9E-05	4.0E-04	NA	NA	NA	NA	NA	NA
nickel	ND	3.3E-05	6.5E-05	NA	NA	NA	NA	NA	NA
selenium	ND	4.4E-06	2.2E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.4E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	1.7E-04	6.6E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	7.8E-03	6.2E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	1.0E-04	7.9E-04	NA	NA	NA	NA	NA	NA
zinc	ND	1.2E-05	1.9E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.7E-07	6.5E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E-08	2.8E-06	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.2E-08	1.5E-06	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.7E-06	4.8E-04	NA	NA	NA	NA	NA	NA
methylene chloride	2.4E-13	7.5E-09	9.0E-07	NA	NA	NA	NA	NA	NA
pyrene	NA	1.8E-06	4.9E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.6E-08	9.9E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.3E-03	1.1E-02	7.0E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18b
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.8E-07	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	2.0E-04	5.4E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	4.5E-06	3.7E-05	1.6E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	8.2E-06	3.2E-03	NA	NA	NA	NA	NA	NA
boron	NA	4.1E-06	3.2E-04	NA	NA	NA	NA	NA	NA
cadmium	ND	4.3E-05	3.4E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	7.2E-05	6.4E-04	NA	NA	NA	NA	NA	NA
cobalt	2.2E-04	5.1E-06	4.5E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.1E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	4.6E-05	3.7E-03	NA	NA	NA	NA	NA	NA
manganese	3.8E-04	1.7E-04	2.3E-02	NA	NA	NA	NA	NA	NA
mercury	1.2E-08	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	6.0E-05	6.2E-04	NA	NA	NA	NA	NA	NA
nickel	ND	2.2E-05	4.3E-05	NA	NA	NA	NA	NA	NA
selenium	ND	3.9E-06	1.9E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.0E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	2.4E-04	9.7E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.3E-04	1.0E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	5.8E-06	9.2E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	7.5E-07	1.3E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.0E-07	2.8E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.1E-07	3.1E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	6.1E-04	1.1E-03	5.2E-02		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18c
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.9E-07	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.3E-04	8.6E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.1E-05	4.9E-05	2.1E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	4.9E-06	2.0E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.1E-05	4.8E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.0E-05	7.0E-04	NA	NA	NA	NA	NA	NA
cobalt	3.9E-04	6.1E-06	5.4E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.4E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.3E-04	1.0E-02	NA	NA	NA	NA	NA	NA
manganese	8.1E-04	3.3E-04	4.4E-02	NA	NA	NA	NA	NA	NA
mercury	5.1E-08	1.0E-05	1.4E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.7E-05	6.0E-04	NA	NA	NA	NA	NA	NA
nickel	ND	2.6E-05	5.2E-05	NA	NA	NA	NA	NA	NA
selenium	ND	2.7E-06	1.3E-05	NA	NA	NA	NA	NA	NA
silver	ND	6.7E-06	ND	NA	NA	NA	NA	NA	NA
thallium	ND	2.6E-04	1.0E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.0E-03	1.6E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	1.1E-04	9.0E-04	NA	NA	NA	NA	NA	NA
zinc	ND	2.6E-05	4.1E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.2E-07	2.2E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	3.1E-07	8.7E-05	NA	NA	NA	NA	NA	NA
methylene chloride	2.9E-13	1.4E-08	1.6E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	6.9E-07	1.9E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.5E-08	7.9E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.2E-03	3.5E-03	2.4E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18d
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	7.6E-07	ND	NA	4.5E-05	ND	5.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	6.8E-04	1.8E-02	NA	NA	NA	2.4E-04	1.1E-02	NA
arsenic	ND	NA	NA	NA	2.1E-03	3.2E-04	6.4E-04	4.5E-04	NA
barium	6.2E-06	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	7.1E-06	2.8E-03	NA	NA	NA	5.7E-06	3.8E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	7.1E-05	5.7E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	6.8E-05	6.0E-04	NA	NA	NA	NA	NA	NA
cobalt	2.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	9.4E-06	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	4.7E-05	3.7E-03	NA	3.6E-04	1.1E-03	5.6E-05	7.5E-03	NA
manganese	4.3E-04	NA	NA	NA	3.4E-05	1.7E-04	2.1E-04	4.7E-02	NA
mercury	2.8E-08	NA	NA	NA	NA	NA	3.1E-05	6.9E-03	NA
molybdenum	ND	4.2E-05	4.4E-04	NA	NA	NA	NA	NA	NA
nickel	ND	1.9E-05	3.8E-05	NA	NA	NA	NA	NA	NA
selenium	ND	4.1E-06	2.0E-05	NA	2.3E-05	4.2E-06	NA	NA	NA
silver	ND	4.4E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.2E-04	9.5E-03	NA	1.3E-03	3.9E-03	1.1E-02	1.5E+00	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	5.3E-06	8.4E-05	NA	3.8E-06	1.3E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.5E-08	1.1E-07	NA	3.4E-04	2.3E-02	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.1E-07	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	1.5E-09	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.2E-06	2.7E-04	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	5.0E-08	1.4E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	7.6E-09	1.4E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	1.2E-07	2.6E-05	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	4.3E-04	6.2E-05	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	6.4E-04	1.1E-03	4.1E-02		4.7E-03	2.8E-02	1.2E-02	1.6E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18e
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	5.6E-07	ND	NA	8.0E-04	ND	4.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	NA	NA	NA	4.3E-04	4.2E-04	5.8E-04	2.6E-02	NA
arsenic	ND	NA	NA	NA	1.1E-03	1.7E-04	1.2E-03	8.5E-04	NA
barium	6.6E-06	3.6E-05	1.6E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	8.7E-06	3.4E-03	NA	8.7E-07	1.3E-05	5.4E-06	3.6E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.3E-05	2.6E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	2.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	9.4E-06	ND	NA	NA	NA	NA	NA	NA
lead	ND	NA	NA	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	2.5E-03	7.3E-03	4.4E-05	5.9E-03	NA
manganese	4.5E-04	2.3E-04	3.0E-02	NA	2.4E-04	1.1E-03	1.6E-04	3.6E-02	NA
mercury	3.1E-08	NA	NA	NA	6.1E-04	6.0E-04	2.3E-05	5.2E-03	NA
molybdenum	ND	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.4E-06	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	8.1E-04	6.4E-02	NA	7.7E-02	2.2E-01	6.8E-03	9.2E-01	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	7.2E-06	1.1E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.9E-07	1.6E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	3.2E-07	7.9E-07	7.4E-10	1.7E-07	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	5.7E-08	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.4E-06	2.2E-06	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	5.6E-04	1.6E-03	6.4E-07	1.4E-04	NA
fluoranthene	NA	1.2E-07	3.4E-05	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.3E-07	3.5E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	5.4E-05	1.0E-04	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.1E-09	9.0E-07	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	6.7E-06	8.3E-04	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	6.6E-04	1.1E-03	1.0E-01		8.3E-02	2.4E-01	8.8E-03	9.9E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-18f
HAZARD QUOTIENTS FOR RECREATIONAL USER, WILDLIFE RESERVE
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	NA	NA	NA	1.6E-05	ND	3.0E-08	ND	NA
aluminum	ND	ND	ND	NA	ND	ND	NA	NA	NA
antimony	ND	1.9E-03	5.1E-02	NA	NA	NA	5.8E-04	2.6E-02	NA
arsenic	ND	8.5E-04	3.6E-04	NA	1.3E-03	2.0E-04	1.2E-03	8.5E-04	NA
barium	8.5E-06	2.6E-05	1.1E-04	NA	3.7E-04	6.0E-05	NA	NA	NA
beryllium	ND	3.8E-06	1.5E-03	NA	NA	NA	5.1E-06	3.4E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.5E-04	1.2E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	7.9E-05	6.9E-04	NA	2.6E-04	1.7E-04	NA	NA	NA
cobalt	4.1E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.3E-05	ND	NA	6.3E-05	ND	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	7.9E-04	2.3E-03	3.3E-05	4.4E-03	NA
manganese	9.6E-04	NA	NA	NA	6.8E-04	3.3E-03	1.1E-04	2.5E-02	NA
mercury	2.5E-08	NA	NA	NA	NA	NA	1.6E-05	3.5E-03	NA
molybdenum	ND	2.7E-05	2.8E-04	NA	NA	NA	NA	NA	NA
nickel	ND	2.9E-05	5.7E-05	NA	1.6E-04	2.3E-05	NA	NA	NA
selenium	ND	4.3E-06	2.1E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.3E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	6.8E-04	5.4E-02	NA	5.3E-03	1.5E-02	2.8E-03	3.7E-01	NA
vanadium	ND	8.9E-05	7.0E-04	NA	5.3E-04	1.5E-03	NA	NA	NA
zinc	ND	6.8E-06	1.1E-04	NA	1.5E-05	5.2E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.7E-06	8.3E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	3.7E-10	8.3E-08	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	8.6E-04	1.1E-03	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.8E-08	1.1E-05	NA
fluoranthene	NA	1.6E-06	4.4E-04	NA	NA	NA	NA	NA	NA
methylene chloride	4.6E-14	1.2E-08	1.4E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	2.3E-06	6.4E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	2.8E-03	5.7E-02	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	1.9E-04	2.8E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	1.1E-03	1.6E-04	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.4E-03	3.9E-03	1.2E-01		1.4E-02	8.1E-02	4.7E-03	4.4E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19a
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	4.8E-13	1.0E-09	NA	1.3E-06	NA	NA	NA	NA	NA
Np_{237+D}	3.3E-10	3.2E-09	NA	1.1E-07	NA	NA	NA	NA	NA
Pu_{238}	1.3E-08	3.4E-08	NA	7.7E-11	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.7E-09	9.9E-09	NA	2.0E-11	NA	NA	NA	NA	NA
Ra_{226+D}	4.6E-08	7.6E-08	NA	1.0E-05	NA	NA	NA	NA	NA
Ru_{106}	1.2E-11	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	3.5E-12	2.2E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	2.5E-12	2.8E-10	NA	2.3E-12	NA	NA	NA	NA	NA
Th_{230}	4.2E-07	3.3E-08	NA	2.4E-09	NA	NA	NA	NA	NA
Th_{232+D}	1.2E-07	1.8E-07	NA	1.6E-04	NA	NA	NA	NA	NA
U_{234}	9.5E-07	2.8E-07	NA	9.2E-09	NA	NA	NA	NA	NA
$U_{235/236}$	7.6E-08	2.3E-08	NA	6.2E-06	NA	NA	NA	NA	NA
U_{238+D}	2.1E-06	6.2E-07	NA	1.4E-05	NA	NA	NA	NA	NA
Rn_{222+D}	7.9E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.5E-06	1.3E-06		1.9E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	4.3E-09	6.5E-07	2.4E-07	NA	NA	NA	NA	NA	NA
beryllium	2.7E-10	1.7E-07	1.7E-07	NA	NA	NA	NA	NA	NA
cadmium	7.6E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	2.5E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	5.8E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	8.4E-18	2.6E-12	5.1E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-10	2.1E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.0E-10	1.2E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.6E-16	1.9E-12	2.0E-10	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	8.4E-11	9.9E-09	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	1.8E-13	2.1E-11	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E-16	4.6E-12	4.9E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	7.0E-11	8.2E-09	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.8E-10	3.9E-11	6.1E-09	NA	NA	NA	NA	NA	NA
trichloroethene	1.1E-09	7.8E-12	8.5E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.5E-12	5.1E-09	5.1E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E-11	2.8E-07	2.8E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E-12	3.7E-08	3.7E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.0E-13	1.2E-08	1.2E-08	NA	NA	NA	NA	NA	NA
chrysene	1.0E-14	3.2E-10	3.2E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.4E-12	8.9E-08	8.9E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.1E-12	6.4E-08	6.4E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	5.9E-07	1.7E-05	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	1.4E-07	4.0E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	4.7E-10	9.9E-09	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.9E-14	1.6E-10	3.4E-09	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.1E-14	1.9E-10	4.0E-09	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.3E-08	2.0E-06	2.2E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	3.3E-08	2.8E-06	2.3E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	4.5E-06	3.3E-06	2.2E-05	1.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	4.5E-06	4.1E-06	2.3E-05	1.9E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19b
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	5.5E-14	8.6E-10	NA	1.1E-06	NA	NA	NA	NA	NA
Np_{237+1d}	2.2E-11	7.1E-09	NA	2.4E-07	NA	NA	NA	NA	NA
Pu_{238}	7.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+bd}	4.3E-09	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.2E-13	2.0E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.2E-13	8.3E-11	NA	6.7E-13	NA	NA	NA	NA	NA
Th_{230}	1.9E-08	9.1E-10	NA	6.6E-11	NA	NA	NA	NA	NA
$Th_{232+10d}$	7.8E-09	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.9E-08	2.5E-09	NA	8.4E-11	NA	NA	NA	NA	NA
$U_{235/236}$	4.2E-09	4.5E-10	NA	1.2E-07	NA	NA	NA	NA	NA
U_{238+2d}	1.2E-07	5.7E-09	NA	1.3E-07	NA	NA	NA	NA	NA
Rn_{222+4d}	1.2E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.3E-07	2.0E-08		1.6E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	1.1E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	6.7E-11	2.3E-07	2.3E-07	NA	NA	NA	NA	NA	NA
cadmium	2.8E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	6.2E-09	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.7E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	2.9E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.8E-10	4.4E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.7E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.0E-09	1.5E-12	1.6E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.9E-13	1.8E-10	1.8E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.3E-13	1.7E-09	1.7E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	8.5E-14	7.7E-10	7.7E-10	NA	NA	NA	NA	NA	NA
chrysene	1.6E-15	1.9E-11	1.9E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.3E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.4E-08	2.4E-07	2.4E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	1.4E-08	2.7E-07	2.7E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	3.4E-07	2.6E-07	2.4E-07	1.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	3.4E-07	2.9E-07	2.7E-07	1.6E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19c
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	2.1E-13	9.0E-10	NA	1.1E-06	NA	NA	NA	NA	NA
Np_{237+d}	7.3E-11	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	2.4E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.1E-10	2.4E-09	NA	4.9E-12	NA	NA	NA	NA	NA
Ra_{226+d}	5.7E-08	1.3E-08	NA	1.8E-06	NA	NA	NA	NA	NA
Ru_{106}	2.1E-12	9.5E-10	NA	ND	NA	NA	NA	NA	NA
Sr_{90+d}	2.2E-12	3.7E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	2.8E-12	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	5.1E-07	1.0E-09	NA	7.3E-11	NA	NA	NA	NA	NA
Th_{232+d}	6.2E-08	1.5E-07	NA	1.4E-04	NA	NA	NA	NA	NA
U_{234}	2.9E-07	1.3E-09	NA	4.4E-11	NA	NA	NA	NA	NA
$U_{235/236}$	2.1E-08	7.9E-09	NA	2.1E-06	NA	NA	NA	NA	NA
U_{238+d}	5.7E-07	3.0E-09	NA	6.8E-08	NA	NA	NA	NA	NA
Rn_{222+d}	4.4E-07	ND	NA	ND	NA	NA	NA	NA	NA
Total Radionuclides	2.0E-06	1.9E-07		1.4E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	2.1E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.5E-10	1.4E-07	1.4E-07	NA	NA	NA	NA	NA	NA
cadmium	4.6E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.3E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	3.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	1.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.5E-11	7.2E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.2E-16	8.4E-12	8.9E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.0E-10	3.1E-11	4.9E-09	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E-09	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.1E-12	1.4E-09	1.4E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.1E-12	7.1E-08	7.1E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.1E-12	3.0E-08	3.0E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.8E-13	2.3E-09	2.3E-09	NA	NA	NA	NA	NA	NA
chrysene	7.0E-15	1.4E-10	1.4E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.1E-12	9.8E-09	9.8E-09	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.6E-12	9.7E-09	9.7E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	3.8E-09	1.1E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	3.5E-08	1.0E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.0E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.6E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.8E-08	3.0E-07	1.4E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	1.8E-08	6.3E-07	1.7E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	2.0E-06	4.9E-07	1.4E-06	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.0E-06	8.2E-07	1.7E-06	1.4E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19d
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	9.2E-14	5.7E-10	NA	7.2E-07	NA	NA	NA	NA	NA
Np_{237+d}	4.6E-11	NA	NA	NA	NA	NA	1.7E-10	NA	6.0E-09
Pu_{238}	3.2E-09	NA	NA	NA	NA	NA	2.5E-09	NA	5.8E-12
$Pu_{239/240}$	3.7E-10	5.5E-09	NA	1.1E-11	NA	NA	1.0E-09	NA	2.1E-12
Ra_{226+d}	8.6E-09	NA	NA	NA	NA	NA	2.9E-07	NA	4.0E-05
Ru_{106}	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	7.6E-13	3.1E-09	NA	ND	NA	NA	4.7E-11	NA	ND
Tc_{99}	8.5E-13	NA	NA	NA	NA	NA	2.5E-11	NA	2.1E-13
Th_{230}	1.4E-07	9.3E-10	NA	6.8E-11	NA	NA	7.2E-09	NA	5.5E-10
Th_{232+d}	3.4E-08	NA	NA	NA	NA	NA	7.0E-09	NA	6.4E-06
U_{234}	2.3E-07	4.3E-09	NA	1.4E-10	5.2E-10	NA	3.6E-08	NA	1.2E-09
$U_{235/236}$	1.7E-08	5.1E-10	NA	1.3E-07	NA	NA	2.4E-09	NA	6.6E-07
U_{238+d}	4.8E-07	5.2E-09	NA	1.2E-07	1.0E-09	NA	7.3E-08	NA	1.7E-06
Rn_{222+d}	5.3E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	9.5E-07	2.0E-08		9.7E-07	1.6E-09		4.2E-07		4.9E-05
Chemicals									
arsenic	1.2E-09	NA	NA	NA	1.9E-07	2.9E-08	5.7E-08	4.1E-08	NA
beryllium	8.0E-11	2.0E-07	2.0E-07	NA	NA	NA	2.1E-08	2.1E-08	NA
cadmium	1.9E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	6.4E-09	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.4E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	1.5E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.4E-11	3.8E-11	NA	1.6E-08	1.1E-06	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	7.4E-13	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.1E-09	9.3E-07	NA
methylene chloride	8.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.8E-11	5.3E-12	8.3E-10	NA	NA	NA	NA	NA	NA
trichloroethene	2.9E-10	7.5E-13	8.1E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	2.7E-08	1.5E-06	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	1.0E-08	5.5E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.8E-16	NA	NA	NA	NA	NA	1.5E-12	3.5E-10	NA
dieldrin	6.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	8.3E-09	2.0E-07	2.1E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
Sum Chem (BaP for PAHs):	8.3E-09	2.0E-07	2.1E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
TOTAL ALL (TEF Approach):	9.6E-07	2.2E-07	2.1E-07	9.7E-07	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05
TOTAL ALL (BaP Approach):	9.6E-07	2.2E-07	2.1E-07	9.7E-07	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19c
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	9.4E-14	8.6E-10	NA	1.1E-06	NA	NA	NA	NA	NA
Np_{237+D}	5.5E-11	NA	NA	NA	9.5E-10	NA	2.8E-10	NA	1.0E-08
Pu_{239}	3.8E-09	NA	NA	NA	2.9E-10	NA	1.4E-09	NA	3.1E-12
$Pu_{239/240}$	4.3E-10	NA	NA	NA	1.2E-10	NA	5.6E-10	NA	1.2E-12
Ra_{226+D}	7.1E-09	NA	NA	NA	8.0E-08	NA	1.5E-07	NA	2.2E-05
Ru_{106}	1.7E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	7.3E-13	2.3E-09	NA	ND	9.4E-10	NA	3.6E-11	NA	ND
Tc_{99}	5.1E-13	6.7E-11	NA	5.5E-13	4.2E-08	NA	2.1E-11	NA	1.8E-13
Th_{230}	1.4E-07	1.2E-09	NA	8.7E-11	2.4E-10	NA	4.4E-09	NA	3.3E-10
Th_{232+D}	2.9E-08	NA	NA	NA	2.4E-10	NA	4.7E-09	NA	4.3E-06
U_{234}	2.4E-07	1.2E-08	NA	4.0E-10	2.9E-07	NA	1.9E-08	NA	6.5E-10
$U_{235/236}$	1.9E-08	1.6E-09	NA	4.1E-07	1.8E-08	NA	1.3E-09	NA	3.6E-07
U_{238+D}	5.3E-07	4.0E-08	NA	9.1E-07	6.0E-07	NA	4.6E-08	NA	1.1E-06
Rn_{222+D}	4.1E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.0E-06	5.8E-08		2.4E-06	1.0E-06		2.3E-07		2.7E-05
Chemicals									
arsenic	1.4E-09	NA	NA	NA	9.9E-08	1.5E-08	1.1E-07	7.7E-08	NA
beryllium	8.0E-11	2.5E-07	2.5E-07	NA	3.2E-09	4.7E-08	2.0E-08	2.0E-08	NA
cadmium	1.9E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	6.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
nickel	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.3E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.3E-10	5.2E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.9E-11	1.7E-10	1.6E-13	3.5E-11	NA
carbazole	ND	4.7E-12	5.6E-10	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	6.8E-10	1.0E-09	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	1.9E-06	5.7E-06	2.2E-09	4.9E-07	NA
methylene chloride	5.8E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.8E-11	3.5E-12	5.6E-10	NA	NA	NA	NA	NA	NA
trichloroethene	3.6E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.6E-13	2.5E-10	2.5E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E-12	1.5E-08	1.5E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E-13	2.0E-09	2.0E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.9E-14	9.9E-10	9.9E-10	NA	NA	NA	NA	NA	NA
chrysene	1.9E-15	2.2E-11	2.2E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.7E-13	3.4E-09	3.4E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	8.9E-10	6.7E-07	1.4E-08	7.7E-07	NA
aroclor-1260	ND	NA	NA	NA	2.7E-10	1.3E-06	5.0E-09	2.7E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.2E-16	NA	NA	NA	8.9E-11	1.1E-08	NA	NA	NA
dieldrin	7.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	8.2E-09	2.7E-07	2.7E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
Sum Chem (BaP for PAHs):	8.2E-09	3.2E-07	3.2E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
TOTAL ALL (TEF Approach):	1.0E-06	3.3E-07	2.7E-07	2.4E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05
TOTAL ALL (BaP Approach):	1.0E-06	3.8E-07	3.2E-07	2.4E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19f
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	8.5E-14	1.2E-09	NA	1.5E-06	NA	NA	NA	NA	NA
Np_{237+d}	5.0E-11	9.5E-09	NA	3.3E-07	3.6E-09	NA	2.8E-10	NA	1.0E-08
Pu_{238}	9.5E-10	2.6E-09	NA	5.9E-12	NA	NA	2.3E-10	NA	5.4E-13
$Pu_{239/240}$	2.1E-10	2.8E-09	NA	5.7E-12	4.1E-09	NA	1.3E-10	NA	2.9E-13
Ra_{226+d}	8.9E-09	1.1E-06	NA	1.5E-04	NA	NA	2.4E-08	NA	3.4E-06
Ru_{106}	4.9E-12	1.2E-09	NA	ND	NA	NA	NA	NA	NA
Sr_{90+d}	5.7E-13	2.2E-09	NA	ND	NA	NA	2.5E-11	NA	ND
Tc_{99}	3.8E-13	6.2E-11	NA	5.0E-13	NA	NA	1.5E-11	NA	1.3E-13
Th_{230}	4.9E-08	1.9E-08	NA	1.4E-09	7.1E-10	NA	1.6E-09	NA	1.2E-10
Th_{232+d}	1.2E-08	1.7E-08	NA	1.5E-05	NA	NA	2.5E-09	NA	2.3E-06
U_{234}	6.4E-08	2.1E-08	NA	6.9E-10	4.1E-07	NA	2.0E-09	NA	6.7E-11
$U_{235/236}$	6.0E-09	8.9E-10	NA	2.4E-07	1.5E-08	NA	2.5E-10	NA	6.9E-08
U_{238+d}	1.5E-07	8.0E-08	NA	1.8E-06	7.4E-07	NA	2.0E-08	NA	4.8E-07
Rn_{222+d}	1.3E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.2E-07	1.2E-06		1.6E-04	1.2E-06		5.1E-08		6.2E-06
Chemicals									
arsenic	4.2E-09	5.9E-07	2.2E-07	NA	1.2E-07	1.8E-08	1.1E-07	7.7E-08	NA
beryllium	1.2E-10	1.1E-07	1.1E-07	NA	NA	NA	1.9E-08	1.9E-08	NA
cadmium	5.5E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.2E-08	ND	ND	NA	ND	ND	NA	NA	NA
nickel	3.2E-10	ND	ND	NA	ND	ND	NA	NA	NA
benzene	1.7E-18	3.0E-12	5.8E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.8E-09	2.8E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.8E-14	1.8E-11	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.6E-10	3.7E-08	NA
methylene chloride	8.3E-17	7.1E-12	7.6E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.0E-10	NA	NA	NA	2.5E-07	5.1E-06	NA	NA	NA
trichloroethene	2.4E-09	2.2E-12	2.4E-10	NA	3.9E-09	1.9E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.3E-13	4.9E-09	4.9E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E-12	2.4E-07	2.4E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.2E-13	7.3E-08	7.3E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.2E-14	7.9E-10	7.9E-10	NA	NA	NA	NA	NA	NA
chrysene	1.6E-15	2.7E-10	2.7E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	3.2E-13	2.7E-09	2.7E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	3.7E-09	1.0E-07	NA	NA	NA	2.0E-09	1.1E-07	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	9.0E-11	4.8E-09	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.3E-14	4.6E-09	9.7E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.0E-08	1.0E-06	8.6E-07		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
Sum Chem (BaP for PAHs):	2.0E-08	1.7E-06	1.5E-06		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
TOTAL ALL (TEF Approach):	4.4E-07	2.3E-06	8.6E-07	1.6E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06
TOTAL ALL (BaP Approach):	4.4E-07	2.9E-06	1.5E-06	1.6E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-19g
ILCRs FOR RECREATIONAL USER, UNDEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	9.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+d}	4.9E-11	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	3.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.7E-10	1.6E-08	NA	3.2E-11	NA	NA	NA	NA	NA
Ra_{226+d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	1.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	9.8E-13	2.4E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	1.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.8E-07	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232+d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.4E-07	2.3E-09	NA	7.6E-11	NA	NA	NA	NA	NA
$U_{235/236}$	1.8E-08	5.2E-10	NA	1.4E-07	NA	NA	NA	NA	NA
U_{238+d}	4.8E-07	3.0E-09	NA	6.8E-08	NA	NA	NA	NA	NA
Rn_{222+d}	7.8E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	9.9E-07	2.4E-08		2.0E-07	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	1.8E-09	7.9E-07	2.9E-07	NA	NA	NA	NA	NA	NA
beryllium	1.1E-10	1.1E-07	1.1E-07	NA	NA	NA	NA	NA	NA
cadmium	3.0E-10	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.5E-09	ND	ND	NA	NA	NA	NA	NA	NA
nickel	2.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.0E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.9E-11	4.6E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.6E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.1E-11	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.5E-13	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.3E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.2E-08	9.0E-07	4.0E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	1.2E-08	9.0E-07	4.0E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.0E-06	9.2E-07	4.0E-07	2.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.0E-06	9.2E-07	4.0E-07	2.0E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20a
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.4E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	2.0E-03	4.7E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	1.2E-03	4.6E-04	NA	NA	NA	NA	NA	NA
barium	3.6E-05	1.1E-04	4.4E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	8.1E-06	2.9E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.8E-04	1.3E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.9E-04	1.5E-03	NA	NA	NA	NA	NA	NA
cobalt	1.0E-03	6.8E-06	5.3E-05	NA	NA	NA	NA	NA	NA
copper	ND	3.9E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.4E-05	1.0E-03	NA	NA	NA	NA	NA	NA
manganese	1.9E-03	1.4E-04	1.6E-02	NA	NA	NA	NA	NA	NA
mercury	2.0E-07	7.6E-05	8.9E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.2E-05	4.8E-04	NA	NA	NA	NA	NA	NA
nickel	ND	4.3E-05	7.7E-05	NA	NA	NA	NA	NA	NA
selenium	ND	5.9E-06	2.6E-05	NA	NA	NA	NA	NA	NA
silver	ND	3.2E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	2.2E-04	7.8E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.0E-02	7.4E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	1.3E-04	9.4E-04	NA	NA	NA	NA	NA	NA
zinc	ND	1.6E-05	2.3E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.9E-07	7.7E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	3.1E-08	3.3E-06	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	1.5E-08	1.8E-06	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	2.3E-06	5.7E-04	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E-13	1.0E-08	1.1E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	2.4E-06	5.8E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	7.5E-08	1.2E-05	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.0E-03	1.5E-02	8.3E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20b
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	9.0E-07	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	2.7E-04	6.4E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	5.9E-06	4.9E-05	1.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.1E-05	3.8E-03	NA	NA	NA	NA	NA	NA
boron	NA	5.4E-06	3.8E-04	NA	NA	NA	NA	NA	NA
cadmium	ND	5.8E-05	4.1E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.6E-05	7.6E-04	NA	NA	NA	NA	NA	NA
cobalt	2.9E-04	6.8E-06	5.3E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.5E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	6.2E-05	4.4E-03	NA	NA	NA	NA	NA	NA
manganese	5.0E-04	2.3E-04	2.7E-02	NA	NA	NA	NA	NA	NA
mercury	1.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	7.9E-05	7.4E-04	NA	NA	NA	NA	NA	NA
nickel	ND	2.9E-05	5.1E-05	NA	NA	NA	NA	NA	NA
selenium	ND	5.2E-06	2.3E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.6E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	3.2E-04	1.1E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.7E-04	1.2E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	7.7E-06	1.1E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.0E-06	1.6E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.4E-07	3.4E-05	NA	NA	NA	NA	NA	NA
methylene chloride	2.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.5E-07	3.6E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.0E-04	1.4E-03	6.1E-02		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20c
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	9.1E-07	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	4.3E-04	1.0E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.4E-05	6.5E-05	2.5E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	6.6E-06	2.3E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	8.1E-05	5.7E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.1E-04	8.3E-04	NA	NA	NA	NA	NA	NA
cobalt	5.1E-04	8.1E-06	6.4E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.8E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.7E-04	1.2E-02	NA	NA	NA	NA	NA	NA
manganese	1.1E-03	4.4E-04	5.2E-02	NA	NA	NA	NA	NA	NA
mercury	6.7E-08	1.4E-05	1.6E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	7.6E-05	7.1E-04	NA	NA	NA	NA	NA	NA
nickel	ND	3.5E-05	6.2E-05	NA	NA	NA	NA	NA	NA
selenium	ND	3.6E-06	1.6E-05	NA	NA	NA	NA	NA	NA
silver	ND	8.9E-06	ND	NA	NA	NA	NA	NA	NA
thallium	ND	3.4E-04	1.2E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.7E-03	1.9E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	1.5E-04	1.1E-03	NA	NA	NA	NA	NA	NA
zinc	ND	3.4E-05	4.9E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.6E-07	2.6E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	4.2E-07	1.0E-04	NA	NA	NA	NA	NA	NA
methylene chloride	3.8E-13	1.8E-08	1.9E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	9.1E-07	2.3E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	6.0E-08	9.4E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.6E-03	4.7E-03	2.8E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20d
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.0E-06	ND	NA	4.5E-05	ND	5.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	9.0E-04	2.1E-02	NA	NA	NA	2.4E-04	1.1E-02	NA
arsenic	ND	NA	NA	NA	2.1E-03	3.2E-04	6.4E-04	4.5E-04	NA
barium	8.1E-06	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	9.5E-06	3.4E-03	NA	NA	NA	5.7E-06	3.8E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	9.5E-05	6.7E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.0E-05	7.1E-04	NA	NA	NA	NA	NA	NA
cobalt	2.7E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.2E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	6.2E-05	4.4E-03	NA	3.6E-04	1.1E-03	5.6E-05	7.5E-03	NA
manganese	5.6E-04	NA	NA	NA	3.4E-05	1.7E-04	2.1E-04	4.7E-02	NA
mercury	3.7E-08	NA	NA	NA	NA	NA	3.1E-05	6.9E-03	NA
molybdenum	ND	5.6E-05	5.2E-04	NA	NA	NA	NA	NA	NA
nickel	ND	2.5E-05	4.5E-05	NA	NA	NA	NA	NA	NA
selenium	ND	5.4E-06	2.4E-05	NA	2.3E-05	4.2E-06	NA	NA	NA
silver	ND	5.9E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.6E-04	1.1E-02	NA	1.3E-03	3.9E-03	1.1E-02	1.5E+00	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	7.0E-06	1.0E-04	NA	3.8E-06	1.3E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.7E-08	1.4E-07	NA	3.4E-04	2.3E-02	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.1E-07	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	1.5E-09	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.2E-06	2.7E-04	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	6.7E-08	1.6E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.0E-08	1.6E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	1.2E-07	2.6E-05	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	4.3E-04	6.2E-05	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.3E-04	1.5E-03	4.8E-02		4.7E-03	2.8E-02	1.2E-02	1.6E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20e
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	7.5E-07	ND	NA	8.0E-04	ND	4.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	NA	NA	NA	4.3E-04	4.2E-04	5.8E-04	2.6E-02	NA
arsenic	ND	NA	NA	NA	1.1E-03	1.7E-04	1.2E-03	8.5E-04	NA
barium	8.6E-06	4.8E-05	1.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.2E-05	4.1E-03	NA	8.7E-07	1.3E-05	5.4E-06	3.6E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.4E-05	3.1E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	2.7E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.3E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	NA	NA	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	2.5E-03	7.3E-03	4.4E-05	5.9E-03	NA
manganese	5.9E-04	3.0E-04	3.5E-02	NA	2.4E-04	1.1E-03	1.6E-04	3.6E-02	NA
mercury	4.1E-08	NA	NA	NA	6.1E-04	6.0E-04	2.3E-05	5.2E-03	NA
molybdenum	ND	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.3E-06	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.1E-03	7.6E-02	NA	7.7E-02	2.2E-01	6.8E-03	9.2E-01	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	9.6E-06	1.4E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.2E-06	1.9E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	3.2E-07	7.9E-07	7.4E-10	1.7E-07	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	5.7E-08	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.4E-06	2.2E-06	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	5.6E-04	1.6E-03	6.4E-07	1.4E-04	NA
fluoranthene	NA	1.6E-07	4.0E-05	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	1.7E-07	4.2E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	5.4E-05	1.0E-04	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	6.8E-09	1.1E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	6.7E-06	8.3E-04	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.6E-04	1.5E-03	1.2E-01		8.3E-02	2.4E-01	8.8E-03	9.9E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-20f
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	NA	NA	NA	1.6E-05	ND	3.0E-08	ND	NA
aluminum	ND	ND	ND	NA	ND	ND	NA	NA	NA
antimony	ND	2.6E-03	6.0E-02	NA	NA	NA	5.8E-04	2.6E-02	NA
arsenic	ND	1.1E-03	4.2E-04	NA	1.3E-03	2.0E-04	1.2E-03	8.5E-04	NA
barium	1.1E-05	3.4E-05	1.3E-04	NA	3.7E-04	6.0E-05	NA	NA	NA
beryllium	ND	5.0E-06	1.8E-03	NA	NA	NA	5.1E-06	3.4E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.0E-04	1.4E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.0E-04	8.2E-04	NA	2.6E-04	1.7E-04	NA	NA	NA
cobalt	5.3E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.7E-05	ND	NA	6.3E-05	ND	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	7.9E-04	2.3E-03	3.3E-05	4.4E-03	NA
manganese	1.3E-03	NA	NA	NA	6.8E-04	3.3E-03	1.1E-04	2.5E-02	NA
mercury	3.3E-08	NA	NA	NA	NA	NA	1.6E-05	3.5E-03	NA
molybdenum	ND	3.5E-05	3.3E-04	NA	NA	NA	NA	NA	NA
nickel	ND	3.8E-05	6.7E-05	NA	1.6E-04	2.3E-05	NA	NA	NA
selenium	ND	5.7E-06	2.5E-05	NA	NA	NA	NA	NA	NA
silver	ND	3.1E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	9.1E-04	6.4E-02	NA	5.3E-03	1.5E-02	2.8E-03	3.7E-01	NA
vanadium	ND	1.2E-04	8.3E-04	NA	5.3E-04	1.5E-03	NA	NA	NA
zinc	ND	9.0E-06	1.3E-04	NA	1.5E-05	5.2E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.3E-06	9.9E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	3.7E-10	8.3E-08	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	8.6E-04	1.1E-03	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.8E-08	1.1E-05	NA
fluoranthene	NA	2.1E-06	5.2E-04	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E-14	1.6E-08	1.7E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	3.1E-06	7.5E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	2.8E-03	5.7E-02	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	1.9E-04	2.8E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	1.1E-03	1.6E-04	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.8E-03	5.2E-03	1.4E-01		1.4E-02	8.1E-02	4.7E-03	4.4E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–20g
HAZARD QUOTIENTS FOR RECREATIONAL USER, UNDEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	3.4E–06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.5E–04	8.2E–03	NA	NA	NA	NA	NA	NA
arsenic	ND	1.5E–03	5.6E–04	NA	NA	NA	NA	NA	NA
barium	1.1E–05	4.3E–05	1.7E–04	NA	NA	NA	NA	NA	NA
beryllium	ND	5.0E–06	1.8E–03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.9E–04	2.3E–03	NA	NA	NA	NA	NA	NA
cobalt	3.9E–04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.7E–05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	NA	NA	NA	NA	NA	NA	NA	NA
manganese	8.1E–04	2.2E–04	2.7E–02	NA	NA	NA	NA	NA	NA
mercury	5.1E–08	7.1E–04	8.4E–02	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.8E–05	5.4E–04	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	2.1E–04	1.5E–02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	9.9E–06	1.4E–04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	1.1E–07	1.7E–07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.9E–14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.2E–03	3.4E–03	1.4E–01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21a
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	1.1E-12	2.4E-09	NA	2.8E-06	NA	NA	NA	NA	NA
Np_{237+D}	7.4E-10	7.7E-09	NA	2.5E-07	NA	NA	NA	NA	NA
Pu_{238}	2.8E-08	8.2E-08	NA	1.7E-10	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.8E-09	2.4E-08	NA	4.6E-11	NA	NA	NA	NA	NA
Ra_{226+D}	1.0E-07	1.8E-07	NA	2.3E-05	NA	NA	NA	NA	NA
Ru_{106}	2.6E-11	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	7.8E-12	5.3E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	5.6E-12	6.6E-10	NA	5.0E-12	NA	NA	NA	NA	NA
Th_{230}	9.3E-07	7.9E-08	NA	5.4E-09	NA	NA	NA	NA	NA
Th_{232+D}	2.7E-07	4.4E-07	NA	3.6E-04	NA	NA	NA	NA	NA
U_{234}	2.1E-06	6.6E-07	NA	2.0E-08	NA	NA	NA	NA	NA
$U_{235/236}$	1.7E-07	5.6E-08	NA	1.4E-05	NA	NA	NA	NA	NA
U_{238+D}	4.7E-06	1.5E-06	NA	3.1E-05	NA	NA	NA	NA	NA
Rn_{222+D}	1.8E-06	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.0E-05	3.0E-06		4.3E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	1.1E-08	2.0E-06	2.7E-07	NA	NA	NA	NA	NA	NA
beryllium	7.0E-10	5.3E-07	5.3E-07	NA	NA	NA	NA	NA	NA
cadmium	2.0E-09	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	6.6E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	1.5E-09	ND	ND	NA	NA	NA	NA	NA	NA
benzene	2.2E-17	7.9E-12	5.7E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.2E-10	2.4E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.1E-10	1.3E-08	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.3E-16	5.8E-12	2.3E-10	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	2.6E-10	1.1E-08	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	5.4E-13	2.3E-11	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-15	1.4E-11	5.4E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	2.1E-10	9.2E-09	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.7E-10	1.2E-10	6.9E-09	NA	NA	NA	NA	NA	NA
trichloroethene	2.8E-09	2.4E-11	9.5E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.9E-12	1.6E-08	1.6E-08	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E-11	8.6E-07	8.6E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.8E-12	1.1E-07	1.1E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E-12	3.8E-08	3.8E-08	NA	NA	NA	NA	NA	NA
chrysene	2.7E-14	9.7E-10	9.7E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.8E-12	2.7E-07	2.7E-07	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.5E-12	1.9E-07	1.9E-07	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.8E-06	1.9E-05	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	4.3E-07	4.5E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	1.4E-09	1.1E-08	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.0E-13	4.9E-10	3.8E-09	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.9E-14	5.8E-10	4.5E-09	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	8.5E-08	6.3E-06	2.6E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	8.5E-08	8.5E-06	2.8E-05		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	1.0E-05	9.3E-06	2.6E-05	4.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	1.0E-05	1.2E-05	2.8E-05	4.3E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21b
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	1.2E-13	2.1E-09	NA	2.4E-06	NA	NA	NA	NA	NA
Np_{237+D}	5.0E-11	1.7E-08	NA	5.5E-07	NA	NA	NA	NA	NA
Pu_{238}	1.6E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.7E-10	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+D}	9.6E-09	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	3.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	7.1E-13	4.8E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	7.1E-13	2.0E-10	NA	1.5E-12	NA	NA	NA	NA	NA
Th_{230}	4.3E-08	2.2E-09	NA	1.5E-10	NA	NA	NA	NA	NA
Th_{232+D}	1.8E-08	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.1E-07	6.1E-09	NA	1.9E-10	NA	NA	NA	NA	NA
$U_{235/236}$	9.4E-09	1.1E-09	NA	2.6E-07	NA	NA	NA	NA	NA
U_{238+D}	2.7E-07	1.4E-08	NA	2.9E-07	NA	NA	NA	NA	NA
Rn_{222+D}	2.7E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.3E-07	4.7E-08		3.5E-06	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	3.0E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.8E-10	7.1E-07	7.1E-07	NA	NA	NA	NA	NA	NA
cadmium	7.2E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	4.4E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	7.6E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.6E-10	4.9E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.0E-17	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.3E-09	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.3E-08	4.6E-12	1.8E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.9E-13	5.5E-10	5.5E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.1E-13	5.2E-09	5.2E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.2E-13	2.4E-09	2.4E-09	NA	NA	NA	NA	NA	NA
chrysene	4.2E-15	5.8E-11	5.8E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	8.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.7E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.0E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.7E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.6E-08	7.2E-07	7.2E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	3.6E-08	8.2E-07	8.2E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	7.6E-07	7.7E-07	7.2E-07	3.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	7.6E-07	8.7E-07	8.2E-07	3.5E-06	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21c
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	4.6E-13	2.1E-09	NA	2.5E-06	NA	NA	NA	NA	NA
Np_{237+id}	1.6E-10	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239}	5.3E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.1E-09	5.7E-09	NA	1.1E-11	NA	NA	NA	NA	NA
Ra_{226+bd}	1.3E-07	3.2E-08	NA	4.0E-06	NA	NA	NA	NA	NA
Ru_{106}	4.7E-12	2.3E-09	NA	ND	NA	NA	NA	NA	NA
Sr_{90+id}	4.8E-12	8.9E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	6.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	1.1E-06	2.4E-09	NA	1.6E-10	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.4E-07	3.7E-07	NA	3.0E-04	NA	NA	NA	NA	NA
U_{234}	6.4E-07	3.2E-09	NA	9.8E-11	NA	NA	NA	NA	NA
$U_{235/236}$	4.6E-08	1.9E-08	NA	4.7E-06	NA	NA	NA	NA	NA
U_{238+2d}	1.3E-06	7.2E-09	NA	1.5E-07	NA	NA	NA	NA	NA
Rn_{222+4d}	9.9E-07	ND	NA	ND	NA	NA	NA	NA	NA
Total Radionuclides	4.4E-06	4.5E-07		3.2E-04	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	5.6E-09	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	3.9E-10	4.3E-07	4.3E-07	NA	NA	NA	NA	NA	NA
cadmium	1.2E-09	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	3.5E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	8.0E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	3.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.4E-10	8.0E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.4E-15	2.6E-11	1.0E-09	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.2E-10	9.5E-11	5.5E-09	NA	NA	NA	NA	NA	NA
trichloroethene	3.1E-09	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.9E-12	4.2E-09	4.2E-09	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E-11	2.2E-07	2.2E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.8E-12	9.2E-08	9.2E-08	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E-12	6.9E-09	6.9E-09	NA	NA	NA	NA	NA	NA
chrysene	1.8E-14	4.4E-10	4.4E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.0E-12	3.0E-08	3.0E-08	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	4.2E-12	3.0E-08	3.0E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.2E-08	1.2E-07	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	1.1E-07	1.1E-06	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.3E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	4.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.2E-14	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.6E-08	9.3E-07	2.1E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	4.6E-08	1.9E-06	3.0E-06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	4.4E-06	1.4E-06	2.1E-06	3.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	4.4E-06	2.4E-06	3.0E-06	3.2E-04	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21d
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	2.1E-13	1.4E-09	NA	1.6E-06	NA	NA	NA	NA	NA
Np_{237+bd}	1.0E-10	NA	NA	NA	NA	NA	1.7E-10	NA	6.0E-09
Pu_{238}	7.1E-09	NA	NA	NA	NA	NA	2.5E-09	NA	5.8E-12
$Pu_{239/240}$	8.2E-10	1.3E-08	NA	2.5E-11	NA	NA	1.0E-09	NA	2.1E-12
Ra_{226+bd}	1.9E-08	NA	NA	NA	NA	NA	2.9E-07	NA	4.0E-05
Ru_{106}	2.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+bd}	1.7E-12	7.3E-09	NA	ND	NA	NA	4.7E-11	NA	ND
Tc_{99}	1.9E-12	NA	NA	NA	NA	NA	2.5E-11	NA	2.1E-13
Th_{230}	3.0E-07	2.2E-09	NA	1.5E-10	NA	NA	7.2E-09	NA	5.5E-10
Th_{232+bd}	7.5E-08	NA	NA	NA	NA	NA	7.0E-09	NA	6.4E-06
U_{234}	5.0E-07	1.0E-08	NA	3.1E-10	5.2E-10	NA	3.6E-08	NA	1.2E-09
$U_{235/236}$	3.7E-08	1.2E-09	NA	3.0E-07	NA	NA	2.4E-09	NA	6.6E-07
U_{238+bd}	1.1E-06	1.2E-08	NA	2.6E-07	1.0E-09	NA	7.3E-08	NA	1.7E-06
Rn_{222+bd}	1.2E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.1E-06	4.8E-08		2.2E-06	1.6E-09		4.2E-07		4.9E-05
Chemicals									
arsenic	3.1E-09	NA	NA	NA	1.9E-07	2.9E-08	5.7E-08	4.1E-08	NA
beryllium	2.1E-10	6.2E-07	6.2E-07	NA	NA	NA	2.1E-08	2.1E-08	NA
cadmium	5.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.7E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	3.8E-10	ND	ND	NA	NA	NA	NA	NA	NA
benzene	4.0E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	7.4E-11	4.3E-11	NA	1.6E-08	1.1E-06	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	7.9E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	7.4E-13	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.1E-09	9.3E-07	NA
methylene chloride	2.2E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.3E-10	1.6E-11	9.3E-10	NA	NA	NA	NA	NA	NA
trichloroethene	7.5E-10	2.3E-12	9.1E-11	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.0E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.7E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.4E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	4.8E-15	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.6E-12	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	2.7E-08	1.5E-06	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	1.0E-08	5.5E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.5E-16	NA	NA	NA	NA	NA	1.5E-12	3.5E-10	NA
dieldrin	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.9E-15	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.2E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.2E-08	6.2E-07	6.3E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
Sum Chem (BaP for PAHs):	2.2E-08	6.2E-07	6.3E-07		2.0E-07	1.1E-06	1.2E-07	3.0E-06	
TOTAL ALL (TEF Approach):	2.2E-06	6.7E-07	6.3E-07	2.2E-06	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05
TOTAL ALL (BaP Approach):	2.2E-06	6.7E-07	6.3E-07	2.2E-06	2.1E-07	1.1E-06	5.4E-07	3.0E-06	4.9E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21e
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+d}	2.1E-13	2.1E-09	NA	2.4E-06	NA	NA	NA	NA	NA
Np_{237+d}	1.2E-10	NA	NA	NA	9.5E-10	NA	2.8E-10	NA	1.0E-08
Pu_{238}	8.4E-09	NA	NA	NA	2.9E-10	NA	1.4E-09	NA	3.1E-12
$Pu_{239/240}$	9.5E-10	NA	NA	NA	1.2E-10	NA	5.6E-10	NA	1.2E-12
Ra_{226+d}	1.6E-08	NA	NA	NA	8.0E-08	NA	1.5E-07	NA	2.2E-05
Ru_{106}	3.9E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+d}	1.6E-12	5.5E-09	NA	ND	9.4E-10	NA	3.6E-11	NA	ND
Tc_{99}	1.1E-12	1.6E-10	NA	1.2E-12	4.2E-08	NA	2.1E-11	NA	1.8E-13
Th_{230}	3.1E-07	2.9E-09	NA	1.9E-10	2.4E-10	NA	4.4E-09	NA	3.3E-10
Th_{232+d}	6.4E-08	NA	NA	NA	2.4E-10	NA	4.7E-09	NA	4.3E-06
U_{234}	5.3E-07	2.9E-08	NA	9.0E-10	2.9E-07	NA	1.9E-08	NA	6.5E-10
$U_{235/236}$	4.3E-08	3.7E-09	NA	9.2E-07	1.8E-08	NA	1.3E-09	NA	3.6E-07
U_{238+d}	1.2E-06	9.6E-08	NA	2.0E-06	6.0E-07	NA	4.6E-08	NA	1.1E-06
Rn_{222+d}	9.2E-08	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.3E-06	1.4E-07		5.4E-06	1.0E-06		2.3E-07		2.7E-05
Chemicals									
arsenic	3.6E-09	NA	NA	NA	9.9E-08	1.5E-08	1.1E-07	7.7E-08	NA
beryllium	2.1E-10	7.6E-07	7.6E-07	NA	3.2E-09	4.7E-08	2.0E-08	2.0E-08	NA
cadmium	5.1E-10	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.6E-08	NA	NA	NA	NA	NA	NA	NA	NA
nickel	3.8E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.4E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.0E-09	5.9E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	6.9E-11	1.7E-10	1.6E-13	3.5E-11	NA
carbazole	ND	1.5E-11	6.3E-10	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	6.8E-10	1.0E-09	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	1.9E-06	5.7E-06	2.2E-09	4.9E-07	NA
methylene chloride	1.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.5E-10	1.1E-11	6.2E-10	NA	NA	NA	NA	NA	NA
trichloroethene	9.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.7E-13	7.6E-10	7.6E-10	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.0E-12	4.6E-08	4.6E-08	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.3E-13	6.2E-09	6.2E-09	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.1E-13	3.0E-09	3.0E-09	NA	NA	NA	NA	NA	NA
chrysene	5.0E-15	6.7E-11	6.7E-11	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.4E-12	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.6E-13	1.0E-08	1.0E-08	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	8.9E-10	6.7E-07	1.4E-08	7.7E-07	NA
aroclor-1260	ND	NA	NA	NA	2.7E-10	1.3E-06	5.0E-09	2.7E-07	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.3E-16	NA	NA	NA	8.9E-11	1.1E-08	NA	NA	NA
dieldrin	1.8E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.1E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.2E-08	8.3E-07	8.3E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
Sum Chem (BaP for PAHs):	2.2E-08	9.7E-07	9.7E-07		2.0E-06	7.7E-06	1.5E-07	1.6E-06	
TOTAL ALL (TEF Approach):	2.3E-06	9.7E-07	8.3E-07	5.4E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05
TOTAL ALL (BaP Approach):	2.3E-06	1.1E-06	9.7E-07	5.4E-06	3.1E-06	7.7E-06	3.8E-07	1.6E-06	2.7E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21f
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+bd}	1.9E-13	2.9E-09	NA	3.4E-06	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E-10	2.3E-08	NA	7.3E-07	3.6E-09	NA	2.8E-10	NA	1.0E-08
Pu_{238}	2.1E-09	6.3E-09	NA	1.3E-11	NA	NA	2.3E-10	NA	5.4E-13
$Pu_{239/240}$	4.8E-10	6.6E-09	NA	1.3E-11	4.1E-09	NA	1.3E-10	NA	2.9E-13
Ra_{226+bd}	2.0E-08	2.6E-06	NA	3.3E-04	NA	NA	2.4E-08	NA	3.4E-06
Ru_{106}	1.1E-11	2.8E-09	NA	ND	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E-12	5.2E-09	NA	ND	NA	NA	2.5E-11	NA	ND
Tc_{99}	8.6E-13	1.5E-10	NA	1.1E-12	NA	NA	1.5E-11	NA	1.3E-13
Th_{230}	1.1E-07	4.4E-08	NA	3.0E-09	7.1E-10	NA	1.6E-09	NA	1.2E-10
$Th_{232+10d}$	2.6E-08	4.1E-08	NA	3.4E-05	NA	NA	2.5E-09	NA	2.3E-06
U_{234}	1.4E-07	5.0E-08	NA	1.5E-09	4.1E-07	NA	2.0E-09	NA	6.7E-11
$U_{235/236}$	1.3E-08	2.1E-09	NA	5.3E-07	1.5E-08	NA	2.5E-10	NA	6.9E-08
U_{238+2d}	3.4E-07	1.9E-07	NA	4.0E-06	7.4E-07	NA	2.0E-08	NA	4.8E-07
Rn_{222+4d}	2.9E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	9.4E-07	3.0E-06		3.7E-04	1.2E-06		5.1E-08		6.2E-06
Chemicals									
arsenic	1.1E-08	1.8E-06	2.5E-07	NA	1.2E-07	1.8E-08	1.1E-07	7.7E-08	NA
beryllium	3.2E-10	3.3E-07	3.3E-07	NA	NA	NA	1.9E-08	1.9E-08	NA
cadmium	1.4E-09	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	3.1E-08	ND	ND	NA	ND	ND	NA	NA	NA
nickel	8.5E-10	ND	ND	NA	ND	ND	NA	NA	NA
benzene	4.6E-18	9.0E-12	6.5E-13	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.4E-09	3.1E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	7.8E-14	1.8E-11	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	6.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.6E-10	3.7E-08	NA
methylene chloride	2.2E-16	2.2E-11	8.5E-10	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.0E-09	NA	NA	NA	2.5E-07	5.1E-06	NA	NA	NA
trichloroethene	6.2E-09	6.8E-12	2.7E-10	NA	3.9E-09	1.9E-08	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.1E-13	1.5E-08	1.5E-08	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	4.8E-12	7.4E-07	7.4E-07	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	5.9E-13	2.2E-07	2.2E-07	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.4E-13	2.4E-09	2.4E-09	NA	NA	NA	NA	NA	NA
chrysene	4.1E-15	8.3E-10	8.3E-10	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.3E-12	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	8.3E-13	8.3E-09	8.3E-09	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.1E-08	1.2E-07	NA	NA	NA	2.0E-09	1.1E-07	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	9.0E-11	4.8E-09	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.6E-15	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.5E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.4E-14	1.4E-08	1.1E-07	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.0E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.2E-08	3.2E-06	1.8E-06		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
Sum Chem (BaP for PAHs):	5.2E-08	5.1E-06	3.7E-06		3.7E-07	5.1E-06	1.3E-07	2.5E-07	
TOTAL ALL (TEF Approach):	9.9E-07	6.1E-06	1.8E-06	3.7E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06
TOTAL ALL (BaP Approach):	9.9E-07	8.1E-06	3.7E-06	3.7E-04	1.5E-06	5.1E-06	1.8E-07	2.5E-07	6.2E-06

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-21g
ILCRs FOR RECREATIONAL USER, DEVELOPED PARK
SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides									
Cs_{137+M}	2.2E-13	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+D}	1.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{238}	6.7E-09	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.2E-10	3.7E-08	NA	7.2E-11	NA	NA	NA	NA	NA
Ra_{226+D}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ru_{106}	2.7E-12	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+D}	2.2E-12	5.8E-09	NA	ND	NA	NA	NA	NA	NA
Tc_{99}	3.5E-12	NA	NA	NA	NA	NA	NA	NA	NA
Th_{230}	4.0E-07	NA	NA	NA	NA	NA	NA	NA	NA
Th_{232+D}	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	5.3E-07	5.5E-09	NA	1.7E-10	NA	NA	NA	NA	NA
$U_{235/236}$	4.0E-08	1.2E-09	NA	3.0E-07	NA	NA	NA	NA	NA
U_{238+D}	1.1E-06	7.2E-09	NA	1.5E-07	NA	NA	NA	NA	NA
Rn_{222+D}	1.8E-07	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.2E-06	5.7E-08		4.6E-07	0.0E+00		0.0E+00		0.0E+00
Chemicals									
arsenic	4.7E-09	2.4E-06	3.3E-07	NA	NA	NA	NA	NA	NA
beryllium	2.8E-10	3.3E-07	3.3E-07	NA	NA	NA	NA	NA	NA
cadmium	7.9E-10	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.5E-08	ND	ND	NA	NA	NA	NA	NA	NA
nickel	5.4E-10	NA	NA	NA	NA	NA	NA	NA	NA
benzene	5.2E-18	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	9.0E-11	5.2E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.3E-17	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.8E-16	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.3E-10	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.1E-10	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.2E-12	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.8E-13	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.9E-13	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	5.5E-15	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.0E-12	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.1E-12	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	NA	NA	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
4,4-dde	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.5E-16	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.7E-14	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.4E-15	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.2E-08	2.7E-06	6.6E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
Sum Chem (BaP for PAHs):	3.2E-08	2.7E-06	6.6E-07		0.0E+00	0.0E+00	0.0E+00	0.0E+00	
TOTAL ALL (TEF Approach):	2.3E-06	2.8E-06	6.6E-07	4.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (BaP Approach):	2.3E-06	2.8E-06	6.6E-07	4.6E-07	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22a
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK PRODUCTION AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	4.4E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	6.1E-03	5.3E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	3.8E-03	5.1E-04	NA	NA	NA	NA	NA	NA
barium	9.6E-05	3.4E-04	4.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	2.5E-05	3.2E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	5.5E-04	1.4E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.7E-04	1.6E-03	NA	NA	NA	NA	NA	NA
cobalt	2.6E-03	2.1E-05	6.0E-05	NA	NA	NA	NA	NA	NA
copper	ND	1.2E-04	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	4.4E-05	1.1E-03	NA	NA	NA	NA	NA	NA
manganese	5.0E-03	4.3E-04	1.8E-02	NA	NA	NA	NA	NA	NA
mercury	5.3E-07	2.3E-04	1.0E-02	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.6E-04	5.4E-04	NA	NA	NA	NA	NA	NA
nickel	ND	1.3E-04	8.6E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.8E-05	2.9E-05	NA	NA	NA	NA	NA	NA
silver	ND	9.8E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	6.8E-04	8.8E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	3.2E-02	8.3E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	4.1E-04	1.1E-03	NA	NA	NA	NA	NA	NA
zinc	ND	4.9E-05	2.5E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.5E-06	8.6E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	9.6E-08	3.7E-06	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	4.7E-08	2.0E-06	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	7.0E-06	6.4E-04	NA	NA	NA	NA	NA	NA
methylene chloride	8.1E-13	3.1E-08	1.2E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	7.2E-06	6.5E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.3E-07	1.3E-05	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	ND	ND	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.8E-03	4.6E-02	9.3E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22b
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK
NORTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.7E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	8.3E-04	7.2E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.5E-05	1.5E-04	2.1E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	3.3E-05	4.3E-03	NA	NA	NA	NA	NA	NA
boron	NA	1.6E-05	4.3E-04	NA	NA	NA	NA	NA	NA
cadmium	ND	1.8E-04	4.6E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.9E-04	8.5E-04	NA	NA	NA	NA	NA	NA
cobalt	7.7E-04	2.1E-05	6.0E-05	NA	NA	NA	NA	NA	NA
copper	ND	4.6E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.9E-04	4.9E-03	NA	NA	NA	NA	NA	NA
manganese	1.3E-03	7.0E-04	3.0E-02	NA	NA	NA	NA	NA	NA
mercury	4.1E-08	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.4E-04	8.3E-04	NA	NA	NA	NA	NA	NA
nickel	ND	8.8E-05	5.7E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.6E-05	2.6E-05	NA	NA	NA	NA	NA	NA
silver	ND	8.1E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	9.9E-04	1.3E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	5.1E-04	1.3E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.4E-05	1.2E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.1E-06	1.8E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	4.1E-07	3.8E-05	NA	NA	NA	NA	NA	NA
methylene chloride	5.1E-14	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	4.5E-07	4.1E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.1E-03	4.4E-03	6.9E-02		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22c
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK
NORTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.8E-06	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	1.3E-03	1.1E-02	NA	NA	NA	NA	NA	NA
arsenic	ND	NA	NA	NA	NA	NA	NA	NA	NA
barium	3.6E-05	2.0E-04	2.8E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	2.0E-05	2.6E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.5E-04	6.4E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.2E-04	9.3E-04	NA	NA	NA	NA	NA	NA
cobalt	1.3E-03	2.5E-05	7.1E-05	NA	NA	NA	NA	NA	NA
copper	ND	5.6E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	5.3E-04	1.4E-02	NA	NA	NA	NA	NA	NA
manganese	2.8E-03	1.4E-03	5.8E-02	NA	NA	NA	NA	NA	NA
mercury	1.8E-07	4.1E-05	1.8E-03	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.3E-04	8.0E-04	NA	NA	NA	NA	NA	NA
nickel	ND	1.1E-04	6.9E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.1E-05	1.8E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.7E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	1.0E-03	1.4E-03	NA	NA	NA	NA	NA	NA
uranium-total	ND	8.3E-03	2.1E-01	NA	NA	NA	NA	NA	NA
vanadium	ND	4.6E-04	1.2E-03	NA	NA	NA	NA	NA	NA
zinc	ND	1.1E-04	5.5E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.0E-07	2.9E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	1.3E-06	1.2E-04	NA	NA	NA	NA	NA	NA
methylene chloride	9.9E-13	5.6E-08	2.2E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	2.8E-06	2.5E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.8E-07	1.1E-05	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.2E-03	1.4E-02	3.2E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22d
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHEAST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	3.1E-06	ND	NA	4.5E-05	ND	5.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	2.7E-03	2.4E-02	NA	NA	NA	2.4E-04	1.1E-02	NA
arsenic	ND	NA	NA	NA	2.1E-03	3.2E-04	6.4E-04	4.5E-04	NA
barium	2.1E-05	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.9E-05	3.8E-03	NA	NA	NA	5.7E-06	3.8E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.9E-04	7.5E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.8E-04	8.0E-04	NA	NA	NA	NA	NA	NA
cobalt	7.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.8E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	1.9E-04	4.9E-03	NA	3.6E-04	1.1E-03	5.6E-05	7.5E-03	NA
manganese	1.5E-03	NA	NA	NA	3.4E-05	1.7E-04	2.1E-04	4.7E-02	NA
mercury	9.7E-08	NA	NA	NA	NA	NA	3.1E-05	6.9E-03	NA
molybdenum	ND	1.7E-04	5.8E-04	NA	NA	NA	NA	NA	NA
nickel	ND	7.8E-05	5.0E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.7E-05	2.7E-05	NA	2.3E-05	4.2E-06	NA	NA	NA
silver	ND	1.8E-04	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	4.8E-04	1.3E-02	NA	1.3E-03	3.9E-03	1.1E-02	1.5E+00	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.2E-05	1.1E-04	NA	3.8E-06	1.3E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.6E-07	1.5E-07	NA	3.4E-04	2.3E-02	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	1.1E-07	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	1.5E-09	ND	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	1.2E-06	2.7E-04	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E-13	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	2.0E-07	1.8E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.1E-08	1.8E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	1.2E-07	2.6E-05	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	4.3E-04	6.2E-05	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.2E-03	4.5E-03	5.4E-02		4.7E-03	2.8E-02	1.2E-02	1.6E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22e
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK
SOUTHWEST AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	2.3E-06	ND	NA	8.0E-04	ND	4.0E-08	ND	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	NA	NA	NA	4.3E-04	4.2E-04	5.8E-04	2.6E-02	NA
arsenic	ND	NA	NA	NA	1.1E-03	1.7E-04	1.2E-03	8.5E-04	NA
barium	2.3E-05	1.5E-04	2.1E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	3.5E-05	4.6E-03	NA	8.7E-07	1.3E-05	5.4E-06	3.6E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.3E-04	3.5E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	7.0E-04	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.8E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	NA	NA	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	2.5E-03	7.3E-03	4.4E-05	5.9E-03	NA
manganese	1.5E-03	9.2E-04	4.0E-02	NA	2.4E-04	1.1E-03	1.6E-04	3.6E-02	NA
mercury	1.1E-07	NA	NA	NA	6.1E-04	6.0E-04	2.3E-05	5.2E-03	NA
molybdenum	ND	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.0E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	3.3E-03	8.6E-02	NA	7.7E-02	2.2E-01	6.8E-03	9.2E-01	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.9E-05	1.5E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.6E-06	2.1E-06	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	3.2E-07	7.9E-07	7.4E-10	1.7E-07	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	5.7E-08	ND	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.4E-06	2.2E-06	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	5.6E-04	1.6E-03	6.4E-07	1.4E-04	NA
fluoranthene	NA	4.9E-07	4.5E-05	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	5.2E-07	4.7E-05	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	5.4E-05	1.0E-04	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.1E-08	1.2E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	6.7E-06	8.3E-04	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.3E-03	4.6E-03	1.3E-01		8.3E-02	2.4E-01	8.8E-03	9.9E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22f
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK
WASTE PIT AREA, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	NA	NA	NA	1.6E-05	ND	3.0E-08	ND	NA
aluminum	ND	ND	ND	NA	ND	ND	NA	NA	NA
antimony	ND	7.8E-03	6.8E-02	NA	NA	NA	5.8E-04	2.6E-02	NA
arsenic	ND	3.5E-03	4.7E-04	NA	1.3E-03	2.0E-04	1.2E-03	8.5E-04	NA
barium	2.9E-05	1.0E-04	1.5E-04	NA	3.7E-04	6.0E-05	NA	NA	NA
beryllium	ND	1.5E-05	2.0E-03	NA	NA	NA	5.1E-06	3.4E-03	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.0E-04	1.6E-02	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.2E-04	9.2E-04	NA	2.6E-04	1.7E-04	NA	NA	NA
cobalt	1.4E-03	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	5.2E-05	ND	NA	6.3E-05	ND	NA	NA	NA
lead	ND	ND	ND	NA	ND	ND	ND	ND	NA
magnesium	ND	NA	NA	NA	7.9E-04	2.3E-03	3.3E-05	4.4E-03	NA
manganese	3.3E-03	NA	NA	NA	6.8E-04	3.3E-03	1.1E-04	2.5E-02	NA
mercury	8.6E-08	NA	NA	NA	NA	NA	1.6E-05	3.5E-03	NA
molybdenum	ND	1.1E-04	3.7E-04	NA	NA	NA	NA	NA	NA
nickel	ND	1.2E-04	7.5E-05	NA	1.6E-04	2.3E-05	NA	NA	NA
selenium	ND	1.7E-05	2.8E-05	NA	NA	NA	NA	NA	NA
silver	ND	9.4E-05	ND	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.8E-03	7.2E-02	NA	5.3E-03	1.5E-02	2.8E-03	3.7E-01	NA
vanadium	ND	3.6E-04	9.3E-04	NA	5.3E-04	1.5E-03	NA	NA	NA
zinc	ND	2.7E-05	1.4E-04	NA	1.5E-05	5.2E-06	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.9E-05	1.1E-05	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	3.7E-10	8.3E-08	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	8.6E-04	1.1E-03	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	4.8E-08	1.1E-05	NA
fluoranthene	NA	6.5E-06	5.9E-04	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E-13	4.8E-08	1.9E-06	NA	NA	NA	NA	NA	NA
pyrene	NA	9.3E-06	8.5E-04	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	NA	NA	NA	2.8E-03	5.7E-02	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	1.9E-04	2.8E-05	NA	NA	NA
fluoride	NA	NA	NA	NA	1.1E-03	1.6E-04	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.7E-03	1.6E-02	1.6E-01		1.4E-02	8.1E-02	4.7E-03	4.4E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-22g
HAZARD QUOTIENTS FOR RECREATIONAL USER, DEVELOPED PARK SHOOTING RANGE, FUTURE LAND USE, WITH ACCESS CONTROLS

Transfer Media:	Air	Soil			Surface Water		Sediments		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure	Incidental Ingestion	Dermal Contact	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.0E-05	ND	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	1.1E-03	9.2E-03	NA	NA	NA	NA	NA	NA
arsenic	ND	4.6E-03	6.3E-04	NA	NA	NA	NA	NA	NA
barium	2.8E-05	1.3E-04	1.9E-04	NA	NA	NA	NA	NA	NA
beryllium	ND	1.5E-05	2.0E-03	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.9E-04	2.6E-03	NA	NA	NA	NA	NA	NA
cobalt	1.0E-03	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	5.1E-05	ND	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	NA	NA	NA	NA	NA	NA	NA	NA
manganese	2.1E-03	6.9E-04	3.0E-02	NA	NA	NA	NA	NA	NA
mercury	1.3E-07	2.2E-03	9.4E-02	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.8E-04	6.0E-04	NA	NA	NA	NA	NA	NA
nickel	ND	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	6.5E-04	1.7E-02	NA	NA	NA	NA	NA	NA
vanadium	ND	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.0E-05	1.6E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.2E-07	1.9E-07	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.1E-13	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	3.2E-03	1.0E-02	1.6E-01		0.0E+00	0.0E+00	0.0E+00	0.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23a
ILCRs FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.2E−12	2.6E−11	9.4E−11	1.3E−10	4.0E−07	3.5E−06	4.9E−06	9.3E−08	NA	6.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−09	6.2E−11	1.1E−12	4.1E−13	NA	NA	NA	NA	NA	NA	1.2E−06	2.2E−07	2.2E−09	8.3E−10	NA	NA
Pu_{238}	8.6E−09	3.1E−10	2.3E−14	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.2E−06	4.6E−08	8.5E−12	6.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	4.3E−10	3.6E−10	4.0E−11	2.9E−10	NA	NA	NA	NA	NA	NA	5.0E−05	9.1E−06	4.3E−07	3.1E−06	1.7E−07	NA
Ru_{106}	1.9E−09	2.5E−10	5.0E−11	6.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.6E−09	5.0E−08	9.1E−09	1.8E−07	1.4E−05	6.1E−06	1.2E−04	3.9E−07	NA	ND	2.0E−07	5.2E−08	5.4E−09	1.1E−07	NA	NA
Tc_{99}	6.5E−11	7.2E−11	1.1E−10	5.4E−10	4.4E−06	3.4E−05	1.6E−04	2.0E−08	NA	8.7E−11	6.8E−05	1.1E−05	1.2E−05	5.6E−05	NA	NA
Th_{230}	4.7E−07	1.4E−09	3.4E−12	1.1E−11	3.9E−09	4.3E−10	1.4E−09	3.2E−07	NA	1.2E−08	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.3E−05	2.3E−07	5.8E−10	1.9E−09	1.5E−08	1.6E−09	5.4E−09	1.2E−06	NA	5.6E−04	NA	NA	NA	NA	NA	NA
U_{234}	6.0E−03	2.4E−05	5.5E−07	6.6E−06	5.9E−07	7.9E−08	9.5E−07	1.0E−06	NA	1.8E−08	3.4E−04	5.2E−05	7.7E−07	9.5E−06	NA	NA
$U_{235/236}$	NA	NA	NA	NA	1.5E−07	2.0E−08	2.3E−07	2.5E−07	NA	3.6E−05	1.5E−05	2.3E−06	3.5E−08	4.3E−07	NA	NA
U_{238+2d}	NA	NA	NA	NA	1.5E−06	2.0E−07	2.4E−06	2.6E−06	NA	3.2E−05	5.8E−04	8.8E−05	1.3E−06	1.6E−05	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	6.1E−03	2.4E−05	5.6E−07	6.8E−06	2.1E−05	4.4E−05	2.9E−04	5.9E−06		6.9E−04	1.1E−03	1.6E−04	1.4E−05	8.6E−05	1.7E−07	
Chemicals																
arsenic	2.9E−08	2.9E−08	2.4E−08	2.9E−09	NA	NA	NA	NA	NA	NA	8.0E−06	1.8E−06	7.1E−07	8.6E−08	ND	2.4E−08
beryllium	1.7E−09	7.1E−09	3.4E−09	1.2E−11	3.2E−06	6.2E−06	2.2E−08	1.5E−05	1.5E−05	NA	1.7E−12	3.3E−13	5.7E−14	2.1E−16	ND	4.8E−13
cadmium	4.9E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	3.4E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	3.2E−17	3.6E−16	1.5E−19	1.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.0E−13	1.9E−14	4.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.8E−13	3.1E−15	3.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E−16	3.6E−16	8.0E−20	1.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−15	4.8E−14	9.4E−19	1.9E−18	9.5E−08	2.6E−12	5.2E−12	1.1E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.6E−14	1.1E−16	1.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.2E−12	5.8E−17	7.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.3E−10	1.8E−07	1.3E−09	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.1E−09	1.4E−07	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	5.1E−12	4.2E−12	5.3E−12	6.8E−12	4.6E−08	1.1E−07	1.4E−07	1.5E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.9E−11	3.0E−10	1.1E−09	1.3E−09	1.4E−06	1.2E−05	1.5E−05	8.5E−07	8.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.9E−12	3.8E−11	1.4E−10	1.7E−10	2.0E−07	1.8E−06	2.2E−06	1.2E−07	1.2E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E−12	1.4E−11	2.9E−10	3.7E−10	3.7E−08	3.1E−06	3.9E−06	6.0E−08	6.0E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	3.4E−14	2.8E−13	3.6E−13	4.6E−13	3.6E−09	8.7E−09	1.1E−08	1.2E−09	1.2E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E−11	9.4E−11	1.8E−09	2.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	7.1E−12	5.3E−11	5.6E−10	7.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.1E−09	1.2E−08	1.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.0E−11	1.1E−09	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−13	1.7E−12	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	5.6E−14	8.3E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.6E−15	3.0E−14	2.8E−14	3.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E−13	7.0E−13	6.9E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.8E−14	4.0E−13	3.1E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.0E−14	2.4E−13	2.7E−10	3.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.0E−07	3.6E−07	4.7E−08	2.8E−08	5.0E−06	2.3E−05	2.1E−05	1.6E−05	1.6E−05		8.0E−06	1.8E−06	7.1E−07	8.6E−08	0.0E+00	2.4E−08
Sum Chem (BaP for PAHs):	2.0E−07	3.6E−07	5.4E−08	3.7E−08	8.2E−06	9.4E−05	1.1E−04	1.8E−05	1.8E−05		8.0E−06	1.8E−06	7.1E−07	8.6E−08	0.0E+00	2.4E−08
TOTAL ALL (TEF Approach):	6.1E−03	2.4E−05	6.1E−07	6.8E−06	2.6E−05	6.7E−05	3.1E−04	2.2E−05	1.6E−05	6.9E−04	1.1E−03	1.6E−04	1.5E−05	8.6E−05	1.7E−07	2.4E−08
TOTAL ALL (BaP Approach):	6.1E−03	2.4E−05	6.2E−07	6.9E−06	2.9E−05	1.4E−04	4.0E−04	2.4E−05	1.8E−05	6.9E−04	1.1E−03	1.6E−04	1.5E−05	8.6E−05	1.7E−07	2.4E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23b
ILCRs FOR RME OFF–PROPERTY FARMER
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.1E−12	1.3E−11	4.5E−11	6.3E−11	4.6E−07	4.0E−06	5.5E−06	1.1E−07	NA	7.1E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.0E−10	2.8E−11	5.1E−13	1.9E−13	NA	NA	NA	NA	NA	NA	2.4E−10	4.3E−11	4.5E−13	1.7E−13	NA	NA
Pu_{238}	1.6E−08	5.6E−10	4.2E−14	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.1E−09	1.2E−10	2.2E−14	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.9E−07	1.6E−07	1.8E−08	1.3E−07	NA	NA	NA	NA	NA	NA	4.1E−05	7.5E−06	3.5E−07	2.6E−06	1.4E−07	NA
Ru_{106}	2.4E−11	3.3E−12	6.5E−13	8.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.9E−12	4.6E−11	8.4E−12	1.7E−10	5.8E−06	2.5E−06	5.0E−05	1.6E−07	NA	ND	2.0E−13	5.2E−14	5.4E−15	1.1E−13	NA	NA
Tc_{99}	6.7E−12	7.4E−12	1.2E−11	5.6E−11	1.6E−06	1.3E−05	5.9E−05	7.5E−09	NA	3.2E−11	2.8E−06	4.8E−07	4.9E−07	2.4E−06	NA	NA
Th_{230}	7.4E−07	2.1E−09	5.4E−12	1.8E−11	1.8E−09	2.0E−10	6.5E−10	1.4E−07	NA	5.7E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.9E−07	1.9E−09	4.8E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.2E−06	4.8E−09	1.1E−10	1.3E−09	1.6E−07	2.1E−08	2.5E−07	2.7E−07	NA	4.7E−09	1.0E−08	1.5E−09	2.3E−11	2.8E−10	NA	NA
$U_{235/236}$	1.0E−07	4.2E−10	9.7E−12	1.2E−10	NA	NA	NA	NA	NA	NA	4.6E−10	6.9E−11	1.0E−12	1.3E−11	NA	NA
U_{238+2d}	2.8E−06	9.6E−09	2.2E−10	2.7E−09	3.0E−07	4.0E−08	4.8E−07	5.2E−07	NA	6.3E−06	1.7E−08	2.6E−09	3.9E−11	4.8E−10	NA	NA
Rn_{222+4d}	2.1E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.3E−06	1.8E−07	1.9E−08	1.4E−07	8.3E−06	1.9E−05	1.2E−04	1.2E−06		7.8E−05	4.4E−05	7.9E−06	8.4E−07	4.9E−06	1.4E−07	
Chemicals																
arsenic	1.2E−08	1.2E−08	9.5E−09	1.1E−09	NA	NA	NA	NA	NA	NA	6.5E−06	1.4E−06	5.8E−07	7.0E−08	ND	2.0E−08
beryllium	6.5E−10	2.7E−09	1.3E−09	4.6E−12	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06	NA	NA	NA	NA	NA	NA	NA
cadmium	2.5E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	6.3E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	1.6E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	4.5E−17	5.2E−16	2.1E−19	2.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	8.4E−14	1.5E−14	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.2E−13	1.4E−15	1.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E−16	3.6E−16	8.0E−20	1.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−15	3.7E−14	7.2E−19	1.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	2.2E−14	1.4E−16	2.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.7E−12	8.5E−17	1.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.0E−09	1.5E−06	1.1E−08	1.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.3E−08	1.2E−06	9.2E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.7E−12	3.0E−12	3.9E−12	4.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E−11	2.4E−10	8.3E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.9E−12	3.0E−11	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E−12	1.3E−11	2.6E−10	3.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.6E−14	2.1E−13	2.8E−13	3.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.9E−12	7.6E−11	1.5E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.6E−12	4.2E−11	4.4E−10	5.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.1E−09	6.1E−09	7.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.5E−11	1.6E−09	2.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−13	1.6E−12	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.0E−14	2.9E−14	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.0E−15	2.6E−14	2.4E−14	3.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.1E−14	3.5E−13	3.4E−14	4.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	9.7E−14	5.7E−13	4.4E−10	6.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.8E−14	3.4E−13	4.0E−10	5.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.3E−07	2.7E−06	3.5E−08	3.2E−08	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06		6.5E−06	1.4E−06	5.8E−07	7.0E−08	0.0E+00	2.0E−08
Sum Chem (BaP for PAHs):	1.3E−07	2.7E−06	4.1E−08	4.0E−08	1.7E−06	3.3E−06	1.2E−08	7.8E−06	7.8E−06		6.5E−06	1.4E−06	5.8E−07	7.0E−08	0.0E+00	2.0E−08
TOTAL ALL (TEF Approach):	7.4E−06	2.9E−06	5.3E−08	1.7E−07	1.0E−05	2.2E−05	1.2E−04	9.1E−06	7.8E−06	7.8E−05	5.0E−05	9.4E−06	1.4E−06	5.0E−06	1.4E−07	2.0E−08
TOTAL ALL (BaP Approach):	7.4E−06	2.9E−06	6.0E−08	1.8E−07	1.0E−05	2.2E−05	1.2E−04	9.1E−06	7.8E−06	7.8E−05	5.0E−05	9.4E−06	1.4E−06	5.0E−06	1.4E−07	2.0E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23c
ILCRs FOR RME OFF–PROPERTY FARMER
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	8.1E−13	9.7E−12	3.5E−11	4.9E−11	3.2E−07	2.8E−06	3.9E−06	7.4E−08	NA	5.0E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.4E−10	2.5E−11	4.4E−13	1.6E−13	NA	NA	NA	NA	NA	NA	1.7E−06	3.0E−07	3.2E−09	1.2E−09	NA	NA
Pu_{238}	2.2E−08	7.9E−10	5.8E−14	4.7E−14	NA	NA	NA	NA	NA	NA	1.8E−15	2.6E−16	9.7E−21	8.0E−21	NA	NA
$Pu_{239/240}$	2.8E−09	1.1E−10	2.0E−14	1.6E−14	NA	NA	NA	NA	NA	NA	2.6E−15	3.9E−16	1.5E−20	1.3E−20	NA	NA
Ra_{226+8d}	1.1E−07	8.7E−08	9.8E−09	7.1E−08	NA	NA	NA	NA	NA	NA	7.7E−06	1.4E−06	6.7E−08	4.9E−07	2.6E−08	NA
Ru_{105}	1.3E−11	1.8E−12	3.5E−13	4.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.9E−12	4.6E−11	8.4E−12	1.7E−10	1.1E−05	4.7E−06	9.4E−05	3.0E−07	NA	ND	1.0E−06	2.7E−07	2.8E−08	5.7E−07	NA	NA
Tc_{99}	8.3E−12	9.1E−12	1.5E−11	6.8E−11	NA	NA	NA	NA	NA	NA	9.4E−05	1.6E−05	1.6E−05	7.8E−05	NA	NA
Th_{230}	1.8E−06	5.1E−09	1.3E−11	4.3E−11	1.4E−09	1.6E−10	5.2E−10	1.1E−07	NA	4.5E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.8E−07	2.8E−09	7.1E−12	2.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.7E−06	6.7E−09	1.5E−10	1.9E−09	1.2E−07	1.6E−08	1.9E−07	2.0E−07	NA	3.6E−09	4.7E−04	7.2E−05	1.1E−06	1.3E−05	NA	NA
$U_{235/236}$	1.3E−07	5.2E−10	1.2E−11	1.5E−10	NA	NA	NA	NA	NA	NA	2.1E−05	3.3E−06	4.9E−08	6.0E−07	NA	NA
U_{238+2d}	3.5E−06	1.2E−08	2.8E−10	3.4E−09	1.9E−07	2.6E−08	3.1E−07	3.3E−07	NA	4.0E−06	8.1E−04	1.2E−04	1.8E−06	2.3E−05	NA	NA
Rn_{222+4d}	5.7E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.1E−06	1.2E−07	1.0E−08	7.7E−08	1.2E−05	7.5E−06	9.9E−05	1.0E−06		5.4E−05	1.4E−03	2.2E−04	1.9E−05	1.2E−04	2.6E−08	
Chemicals																
arsenic	8.9E−09	9.0E−09	7.3E−09	8.7E−10	NA	NA	NA	NA	NA	NA	1.7E−08	3.8E−09	1.5E−09	1.9E−10	ND	5.3E−11
beryllium	5.4E−10	2.2E−09	1.1E−09	3.8E−12	NA	NA	NA	NA	NA	NA	2.7E−10	5.2E−11	9.0E−12	3.3E−14	ND	7.7E−11
cadmium	1.4E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.4E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.0E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.3E−17	1.5E−16	6.1E−20	7.8E−20	NA	NA	NA	NA	NA	NA	9.2E−11	2.8E−11	6.2E−15	8.2E−15	3.5E−10	1.7E−11
bis(2−ethylhexyl)phthalate	ND	4.3E−14	7.8E−15	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	8.6E−14	9.5E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.2E−16	1.3E−16	3.0E−20	4.1E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E−03	4.7E−04	6.8E−08	8.7E−08	3.3E−03	1.1E−04
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.7E−02	3.5E−03	9.5E−08	2.2E−07	ND	3.0E−03
methylene chloride	6.8E−16	1.9E−14	3.6E−19	7.4E−19	NA	NA	NA	NA	NA	NA	1.5E−14	2.1E−15	1.2E−20	2.8E−20	1.2E−14	5.7E−16
n−nitrosodiphenylamine	ND	7.9E−15	5.2E−17	7.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	5.2E−13	2.5E−17	3.4E−17	NA	NA	NA	NA	NA	NA	8.0E−08	1.6E−08	4.4E−13	6.2E−13	ND	3.4E−09
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.2E−10	1.1E−07	8.3E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.1E−09	8.6E−08	6.8E−11	8.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E−12	1.5E−12	1.9E−12	2.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E−11	1.1E−10	4.0E−10	5.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.8E−12	1.4E−11	5.0E−11	6.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.8E−13	5.3E−12	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.3E−14	1.0E−13	1.3E−13	1.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.3E−12	3.3E−11	6.5E−10	8.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.5E−12	1.9E−11	2.0E−10	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.6E−10	4.4E−09	5.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	4.3E−12	4.8E−10	6.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	5.0E−14	7.0E−13	8.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.0E−14	2.9E−14	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.9E−15	1.2E−14	1.2E−14	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.8E−14	2.6E−13	2.6E−14	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.3E−14	2.0E−13	1.5E−10	2.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.7E−14	1.0E−13	1.2E−10	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.9E−08	2.1E−07	1.6E−08	1.0E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		2.8E−02	3.9E−03	1.6E−07	3.1E−07	3.3E−03	3.1E−03
Sum Chem (BaP for PAHs):	5.9E−08	2.1E−07	1.9E−08	1.4E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		2.8E−02	3.9E−03	1.6E−07	3.1E−07	3.3E−03	3.1E−03
TOTAL ALL (TEF Approach):	8.1E−06	3.3E−07	2.6E−08	8.7E−08	1.2E−05	7.5E−06	9.9E−05	1.0E−06	0.0E+00	5.4E−05	3.0E−02	4.2E−03	1.9E−05	1.2E−04	3.3E−03	3.1E−03
TOTAL ALL (BaP Approach):	8.1E−06	3.3E−07	2.9E−08	9.0E−08	1.2E−05	7.5E−06	9.9E−05	1.0E−06	0.0E+00	5.4E−05	3.0E−02	4.2E−03	1.9E−05	1.2E−04	3.3E−03	3.1E−03

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23d
ILCRs FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	6.2E−13	7.4E−12	2.6E−11	3.7E−11	4.0E−07	3.5E−06	4.9E−06	9.3E−08	NA	6.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.3E−10	1.9E−11	3.4E−13	1.2E−13	NA	NA	NA	NA	NA	NA	7.5E−07	1.4E−07	1.4E−09	5.2E−10	NA	NA
Pu_{238}	1.2E−08	4.3E−10	3.2E−14	2.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.9E−09	7.3E−11	1.4E−14	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	8.9E−08	7.4E−08	8.3E−09	6.0E−08	NA	NA	NA	NA	NA	NA	4.5E−05	8.2E−06	3.9E−07	2.8E−06	1.5E−07	NA
Ru_{106}	1.7E−11	2.3E−12	4.5E−13	5.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.6E−12	2.7E−11	4.9E−12	9.8E−11	2.1E−05	9.0E−06	1.8E−04	5.7E−07	NA	ND	1.4E−06	3.7E−07	3.8E−08	7.7E−07	NA	NA
Tc_{99}	4.1E−12	4.5E−12	7.3E−12	3.4E−11	NA	NA	NA	NA	NA	NA	5.8E−06	9.9E−07	1.0E−06	4.8E−06	NA	NA
Th_{230}	5.7E−07	1.6E−09	4.2E−12	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.3E−07	1.3E−09	3.2E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	8.7E−07	3.4E−09	8.0E−11	9.6E−10	1.1E−07	1.4E−08	1.7E−07	1.8E−07	NA	3.2E−09	3.0E−06	4.5E−07	6.7E−09	8.4E−08	NA	NA
$U_{235/236}$	7.2E−08	3.0E−10	6.9E−12	8.3E−11	NA	NA	NA	NA	NA	NA	1.4E−07	2.1E−08	3.1E−10	3.8E−09	NA	NA
U_{238+2d}	1.9E−06	6.7E−09	1.5E−10	1.9E−09	2.6E−07	3.4E−08	4.1E−07	4.4E−07	NA	5.4E−06	5.1E−06	7.7E−07	1.2E−08	1.4E−07	NA	NA
Rn_{222+4d}	1.2E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.9E−06	8.8E−08	8.6E−09	6.3E−08	2.2E−05	1.2E−05	1.9E−04	1.3E−06		6.8E−05	6.1E−05	1.1E−05	1.4E−06	8.6E−06	1.5E−07	
Chemicals																
arsenic	1.2E−08	1.2E−08	9.5E−09	1.1E−09	NA	NA	NA	NA	NA	NA	1.8E−05	4.0E−06	1.6E−06	2.0E−07	ND	5.6E−08
beryllium	4.9E−10	2.0E−09	9.5E−10	3.4E−12	NA	NA	NA	NA	NA	NA	6.3E−07	1.2E−07	2.1E−08	7.8E−11	ND	1.8E−07
cadmium	1.8E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.4E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.2E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.3E−17	1.5E−16	5.9E−20	7.6E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.9E−14	7.0E−15	1.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	5.3E−14	5.8E−16	7.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.8E−16	1.1E−16	2.5E−20	3.5E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E−16	1.4E−14	2.6E−19	5.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	9.9E−15	6.5E−17	9.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	5.2E−13	2.5E−17	3.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.5E−09	5.4E−07	4.0E−09	5.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E−08	4.1E−07	3.3E−10	4.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.4E−12	1.1E−12	1.4E−12	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E−11	8.6E−11	3.0E−10	3.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.4E−12	1.1E−11	4.0E−11	5.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.6E−13	4.3E−12	9.0E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	9.5E−15	7.7E−14	1.0E−13	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.4E−12	2.6E−11	5.1E−10	6.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.0E−12	1.5E−11	1.6E−10	2.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	4.6E−10	2.7E−09	3.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	4.2E−12	4.7E−10	5.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.8E−14	5.4E−13	6.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	9.7E−15	1.4E−14	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.9E−15	1.2E−14	1.1E−14	1.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.4E−14	1.6E−13	1.6E−14	2.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.0E−14	2.4E−13	1.8E−10	2.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.7E−14	9.8E−14	1.1E−10	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	7.6E−08	9.7E−07	1.9E−08	1.2E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.9E−05	4.2E−06	1.7E−06	2.0E−07	0.0E+00	2.4E−07
Sum Chem (BaP for PAHs):	7.6E−08	9.7E−07	2.2E−08	1.5E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.9E−05	4.2E−06	1.7E−06	2.0E−07	0.0E+00	2.4E−07
TOTAL ALL (TEF Approach):	5.0E−06	1.1E−06	2.8E−08	7.5E−08	2.2E−05	1.2E−05	1.9E−04	1.3E−06	0.0E+00	6.8E−05	8.0E−05	1.5E−05	3.1E−06	8.8E−06	1.5E−07	2.4E−07
TOTAL ALL (BaP Approach):	5.0E−06	1.1E−06	3.0E−08	7.8E−08	2.2E−05	1.2E−05	1.9E−04	1.3E−06	0.0E+00	6.8E−05	8.0E−05	1.5E−05	3.1E−06	8.8E−06	1.5E−07	2.4E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23e
ILCRs FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.0E−12	2.4E−11	8.7E−11	1.2E−10	4.7E−07	4.0E−06	5.6E−06	1.1E−07	NA	7.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	9.1E−10	5.1E−11	9.2E−13	3.4E−13	NA	NA	NA	NA	NA	NA	3.3E−16	6.0E−17	6.2E−19	2.3E−19	NA	NA
Pu_{238}	2.9E−08	1.0E−09	7.7E−14	6.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.3E−09	2.0E−10	3.8E−14	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	6.6E−07	5.4E−07	6.1E−08	4.4E−07	NA	NA	NA	NA	NA	NA	3.4E−20	6.2E−21	2.9E−22	2.1E−21	1.2E−22	NA
Ru_{106}	2.8E−11	3.7E−12	7.4E−13	9.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.9E−11	1.1E−10	2.0E−11	4.0E−10	3.0E−05	1.3E−05	2.6E−04	8.3E−07	NA	ND	1.7E−16	4.4E−17	4.5E−18	9.1E−17	NA	NA
Tc_{99}	1.8E−11	2.0E−11	3.2E−11	1.5E−10	2.2E−06	1.7E−05	8.2E−05	1.0E−08	NA	4.5E−11	3.8E−10	6.4E−11	6.5E−11	3.1E−10	NA	NA
Th_{230}	3.3E−06	9.6E−09	2.4E−11	8.1E−11	1.3E−09	1.4E−10	4.6E−10	1.0E−07	NA	4.0E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.1E−07	5.1E−09	1.3E−11	4.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.8E−06	1.1E−08	2.5E−10	3.0E−09	2.7E−07	3.6E−08	4.4E−07	4.7E−07	NA	8.4E−09	1.3E−08	2.0E−09	3.0E−11	3.7E−10	NA	NA
$U_{235/236}$	2.1E−07	8.7E−10	2.0E−11	2.4E−10	2.9E−08	3.8E−09	4.6E−08	4.9E−08	NA	7.0E−06	6.0E−10	9.1E−11	1.4E−12	1.7E−11	NA	NA
U_{238+2d}	5.8E−06	2.0E−08	4.7E−10	5.6E−09	4.9E−07	6.4E−08	7.7E−07	8.4E−07	NA	1.0E−05	2.2E−08	3.4E−09	5.1E−11	6.3E−10	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.3E−05	5.9E−07	6.2E−08	4.5E−07	3.3E−05	3.4E−05	3.5E−04	2.4E−06		9.0E−05	3.7E−08	5.6E−09	1.5E−10	1.3E−09	1.2E−22	
Chemicals																
arsenic	1.7E−08	1.8E−08	1.4E−08	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.3E−09	5.1E−09	2.4E−09	8.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.6E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.1E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	2.6E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	8.3E−17	9.4E−16	3.8E−19	4.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.7E−13	3.1E−14	6.9E−14	9.7E−09	4.1E−09	9.3E−09	2.6E−09	3.7E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.9E−13	4.3E−15	5.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.2E−15	7.1E−16	1.6E−19	2.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.7E−15	1.3E−13	2.5E−18	5.0E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	2.2E−14	1.4E−16	2.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	3.2E−12	1.6E−16	2.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.9E−09	4.3E−07	3.1E−09	4.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E−08	3.3E−07	2.6E−10	3.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA.	NA
benzo(a)anthracene	8.7E−12	7.1E−12	9.1E−12	1.2E−11	8.9E−08	2.2E−07	2.8E−07	3.0E−08	3.0E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	7.1E−11	5.5E−10	1.9E−09	2.5E−09	3.3E−06	2.8E−05	3.5E−05	2.0E−06	2.0E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.8E−12	6.0E−11	2.2E−10	2.8E−10	4.0E−07	3.5E−06	4.5E−06	2.4E−07	2.4E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.7E−12	2.9E−11	6.0E−10	7.6E−10	8.8E−08	7.3E−06	9.2E−06	1.4E−07	1.4E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	5.1E−14	4.2E−13	5.4E−13	6.9E−13	8.6E−09	2.1E−08	2.7E−08	2.9E−09	2.9E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.4E−11	1.8E−10	3.5E−09	4.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.1E−11	8.3E−11	8.7E−10	1.1E−09	2.9E−07	1.0E−05	1.3E−05	3.3E−07	3.3E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.1E−09	1.8E−08	2.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.7E−11	3.0E−09	3.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.0E−13	2.8E−12	3.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.5E−14	5.1E−14	6.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.1E−15	2.6E−14	2.5E−14	3.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.2E−14	4.9E−13	4.8E−14	6.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.2E−13	6.9E−13	5.3E−10	7.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.1E−13	6.3E−13	7.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E−07	7.8E−07	4.9E−08	4.3E−08	4.2E−06	4.9E−05	6.3E−05	2.7E−06	2.7E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	1.5E−07	7.9E−07	6.4E−08	6.2E−08	1.2E−05	2.4E−04	3.0E−04	8.7E−06	8.7E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	1.4E−05	1.4E−06	1.1E−07	4.9E−07	3.8E−05	8.4E−05	4.1E−04	5.1E−06	2.7E−06	9.0E−05	3.7E−08	5.6E−09	1.5E−10	1.3E−09	1.2E−22	0.0E+00
TOTAL ALL (BaP Approach):	1.4E−05	1.4E−06	1.3E−07	5.1E−07	4.5E−05	2.7E−04	6.5E−04	1.1E−05	8.7E−06	9.0E−05	3.7E−08	5.6E−09	1.5E−10	1.3E−09	1.2E−22	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23f
ILCRs FOR RME OFF–PROPERTY FARMER
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	9.5E−13	1.1E−11	4.0E−11	5.7E−11	4.7E−07	4.0E−06	5.6E−06	1.1E−07	NA	7.2E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	4.7E−10	2.6E−11	4.8E−13	1.7E−13	NA	NA	NA	NA	NA	NA	8.4E−07	1.5E−07	1.6E−09	5.9E−10	NA	NA
Pu_{238}	2.6E−08	9.2E−10	6.8E−14	5.4E−14	NA	NA	NA	NA	NA	NA	1.7E−23	2.5E−24	9.3E−29	7.7E−29	NA	NA
Pu_{239240}	3.3E−09	1.3E−10	2.4E−14	1.9E−14	NA	NA	NA	NA	NA	NA	3.5E−21	5.3E−22	2.1E−26	1.7E−26	NA	NA
Ra_{226+8d}	1.2E−07	1.0E−07	1.1E−08	8.2E−08	NA	NA	NA	NA	NA	NA	2.7E−07	4.9E−08	2.3E−09	1.7E−08	9.2E−10	NA
Ru_{106}	1.4E−11	1.8E−12	3.7E−13	4.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	9.3E−12	5.5E−11	9.9E−12	2.0E−10	3.0E−05	1.3E−05	2.6E−04	8.3E−07	NA	ND	2.5E−08	6.4E−09	6.6E−10	1.3E−08	NA	NA
Tc_{99}	1.4E−11	1.6E−11	2.5E−11	1.2E−10	2.2E−06	1.7E−05	8.2E−05	1.0E−08	NA	4.5E−11	4.4E−05	7.4E−06	7.6E−06	3.6E−05	NA	NA
Th_{230}	1.8E−06	5.3E−09	1.4E−11	4.5E−11	1.3E−09	1.4E−10	4.6E−10	1.0E−07	NA	4.0E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	3.2E−07	3.2E−09	8.1E−12	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.1E−06	8.4E−09	2.0E−10	2.4E−09	2.7E−07	3.6E−08	4.4E−07	4.7E−07	NA	8.4E−09	2.3E−04	3.6E−05	5.3E−07	6.6E−06	NA	NA
$U_{235/236}$	1.6E−07	6.4E−10	1.5E−11	1.8E−10	2.9E−08	3.8E−09	4.6E−08	4.9E−08	NA	7.0E−06	1.1E−05	1.6E−06	2.4E−08	3.0E−07	NA	NA
U_{238+2d}	4.3E−06	1.5E−08	3.4E−10	4.1E−09	4.9E−07	6.4E−08	7.7E−07	8.4E−07	NA	1.0E−05	4.0E−04	6.1E−05	9.1E−07	1.1E−05	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.9E−06	1.3E−07	1.2E−08	8.9E−08	3.3E−05	3.4E−05	3.5E−04	2.4E−06		9.0E−05	6.9E−04	1.1E−04	9.0E−06	5.4E−05	9.2E−10	
Chemicals																
arsenic	1.4E−08	1.4E−08	1.1E−08	1.3E−09	NA	NA	NA	NA	NA	NA	5.0E−18	1.1E−18	4.4E−19	5.3E−20	ND	1.5E−20
beryllium	8.2E−10	3.3E−09	1.6E−09	5.7E−12	NA	NA	NA	NA	NA	NA	2.2E−21	4.4E−22	7.5E−23	2.7E−25	ND	6.4E−22
cadmium	2.2E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	7.1E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.6E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.8E−17	2.0E−16	8.0E−20	1.0E−19	NA	NA	NA	NA	NA	NA	3.7E−12	1.1E−12	2.5E−16	3.3E−16	1.4E−11	7.0E−13
bis(2−ethylhexyl)phthalate	ND	5.3E−14	9.7E−15	2.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.3E−13	1.5E−15	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−16	1.8E−16	3.9E−20	5.3E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.5E−04	1.2E−04	1.7E−08	2.2E−08	8.4E−04	2.7E−05
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.0E−03	9.2E−04	2.5E−08	5.8E−08	ND	7.9E−04
methylene chloride	9.7E−16	2.7E−14	5.2E−19	1.0E−18	NA	NA	NA	NA	NA	NA	2.6E−20	3.7E−21	2.2E−26	4.9E−26	2.1E−20	1.0E−21
n−nitrosodiphenylamine	ND	8.7E−15	5.7E−17	8.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.7E−13	3.3E−17	4.4E−17	NA	NA	NA	NA	NA	NA	2.1E−09	4.3E−10	1.2E−14	1.6E−14	ND	8.8E−11
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.4E−10	1.2E−07	8.7E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.3E−09	9.0E−08	7.1E−11	9.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.5E−12	2.0E−12	2.6E−12	3.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.9E−11	1.5E−10	5.3E−10	6.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E−12	1.8E−11	6.7E−11	8.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.3E−13	7.2E−12	1.5E−10	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.6E−14	1.3E−13	1.7E−13	2.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.9E−12	4.5E−11	8.8E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.4E−12	2.6E−11	2.7E−10	3.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	9.2E−10	5.4E−09	6.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.6E−12	6.2E−10	7.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.1E−14	8.6E−13	1.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.3E−14	3.4E−14	4.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.2E−15	1.4E−14	1.3E−14	1.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.4E−14	3.0E−13	2.9E−14	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.7E−14	2.2E−13	1.7E−10	2.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.2E−14	1.3E−13	1.5E−10	2.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	9.3E−08	2.3E−07	2.2E−08	1.3E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		7.5E−03	1.0E−03	4.2E−08	7.9E−08	8.4E−04	8.1E−04
Sum Chem (BaP for PAHs):	9.3E−08	2.3E−07	2.6E−08	1.8E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		7.5E−03	1.0E−03	4.2E−08	7.9E−08	8.4E−04	8.1E−04
TOTAL ALL (TEF Approach):	9.0E−06	3.6E−07	3.4E−08	1.0E−07	3.3E−05	3.4E−05	3.5E−04	2.4E−06	0.0E+00	9.0E−05	8.2E−03	1.1E−03	9.1E−06	5.4E−05	8.4E−04	8.1E−04
TOTAL ALL (BaP Approach):	9.0E−06	3.6E−07	3.8E−08	1.1E−07	3.3E−05	3.4E−05	3.5E−04	2.4E−06	0.0E+00	9.0E−05	8.2E−03	1.1E−03	9.1E−06	5.4E−05	8.4E−04	8.1E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII-23g
ILCRs FOR RME OFF-PROPERTY FARMER AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	1.6E-12	1.9E-11	6.8E-11	9.6E-11	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.1E-10	3.4E-11	6.2E-13	2.2E-13	5.0E-12	9.1E-13	9.5E-15	3.5E-15	NA	NA
Pu_{238}	2.4E-08	8.4E-10	6.2E-14	4.9E-14	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.1E-09	1.6E-10	2.9E-14	2.4E-14	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.8E-07	3.2E-07	3.6E-08	2.6E-07	3.4E-20	6.1E-21	2.9E-22	2.1E-21	1.1E-22	NA
Ru_{106}	1.7E-11	2.3E-12	4.6E-13	5.8E-16	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.9E-11	1.1E-10	2.0E-11	4.0E-10	5.7E-12	1.5E-12	1.5E-13	3.1E-12	NA	NA
Tc_{99}	3.3E-11	3.6E-11	5.7E-11	2.7E-10	1.2E-07	2.0E-08	2.1E-08	9.9E-08	NA	NA
Th_{230}	5.0E-06	1.5E-08	3.7E-11	1.2E-10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.7E-07	5.7E-09	1.5E-11	4.8E-11	NA	NA	NA	NA	NA	NA
U_{234}	2.9E-06	1.1E-08	2.7E-10	3.2E-09	3.4E-07	5.2E-08	7.8E-10	9.7E-09	NA	NA
$U_{235/236}$	2.0E-07	8.1E-10	1.9E-11	2.3E-10	1.6E-08	2.4E-09	3.5E-11	4.4E-10	NA	NA
U_{238+2d}	5.4E-06	1.9E-08	4.4E-10	5.2E-09	5.9E-07	8.9E-08	1.3E-09	1.6E-08	NA	NA
Rn_{222+4d}	3.0E-06	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.8E-05	3.7E-07	3.6E-08	2.7E-07	1.1E-06	1.6E-07	2.3E-08	1.3E-07	1.1E-22	
Chemicals										
arsenic	1.4E-08	1.4E-08	1.1E-08	1.3E-09	4.6E-26	1.0E-26	4.1E-27	5.0E-28	ND	1.4E-28
beryllium	8.7E-10	3.5E-09	1.7E-09	6.1E-12	NA	NA	NA	NA	NA	NA
cadmium	2.6E-09	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	7.9E-08	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	1.8E-09	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	3.8E-17	4.3E-16	1.7E-19	2.2E-19	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	8.9E-14	1.6E-14	3.6E-14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.7E-13	3.0E-15	3.8E-15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E-16	3.6E-16	8.0E-20	1.1E-19	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	4.8E-05	1.3E-05	1.8E-09	2.4E-09	9.0E-05	2.9E-06
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.1E-15	5.7E-14	1.1E-18	2.2E-18	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	1.3E-14	8.5E-17	1.2E-16	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	1.4E-12	7.1E-17	9.6E-17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E-09	2.4E-07	1.7E-09	2.2E-09	NA	NA	NA	NA	NA	NA
trichloroethene	6.6E-09	1.8E-07	1.4E-10	1.8E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.5E-12	3.7E-12	4.7E-12	6.0E-12	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.6E-11	2.8E-10	9.8E-10	1.2E-09	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.3E-12	3.3E-11	1.2E-10	1.5E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E-12	1.4E-11	3.0E-10	3.7E-10	NA	NA	NA	NA	NA	NA
chrysene	2.8E-14	2.3E-13	3.0E-13	3.8E-13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E-11	9.1E-11	1.8E-09	2.2E-09	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	6.3E-12	4.7E-11	5.0E-10	6.3E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	1.5E-09	9.0E-09	1.1E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	1.2E-11	1.4E-09	1.7E-09	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	1.0E-13	1.4E-12	1.8E-12	NA	NA	NA	NA	NA	NA
4,4-dde	ND	2.3E-14	3.4E-14	4.3E-14	NA	NA	NA	NA	NA	NA
chlordane	2.6E-15	1.7E-14	1.6E-14	2.0E-14	NA	NA	NA	NA	NA	NA
dieldrin	4.7E-14	3.2E-13	3.1E-14	4.0E-14	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.0E-14	3.6E-13	2.7E-10	3.9E-10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.0E-14	2.9E-13	3.4E-10	4.9E-10	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E-07	4.4E-07	2.9E-08	2.2E-08	4.8E-05	1.3E-05	1.8E-09	2.4E-09	9.0E-05	2.9E-06
Sum Chem (BaP for PAHs):	1.1E-07	4.4E-07	3.7E-08	3.2E-08	4.8E-05	1.3E-05	1.8E-09	2.4E-09	9.0E-05	2.9E-06
TOTAL ALL (TEF Approach):	1.8E-05	8.0E-07	6.6E-08	2.9E-07	4.9E-05	1.3E-05	2.5E-08	1.3E-07	9.0E-05	2.9E-06
TOTAL ALL (BaP Approach):	1.8E-05	8.1E-07	7.3E-08	3.0E-07	4.9E-05	1.3E-05	2.5E-08	1.3E-07	9.0E-05	2.9E-06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–23h
ILCRs FOR RME OFF–PROPERTY FARMER
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	1.6E–12	1.9E–11	6.8E–11	9.5E–11	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.7E–10	4.4E–11	7.9E–13	2.9E–13	1.5E–07	2.8E–08	2.9E–10	1.1E–10	NA	NA
Pu_{238}	3.1E–08	1.1E–09	8.1E–14	6.5E–14	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.8E–09	1.9E–10	3.5E–14	2.8E–14	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.2E–07	1.8E–07	2.0E–08	1.5E–07	2.0E–06	3.6E–07	1.7E–08	1.2E–07	6.7E–09	NA
Ru_{106}	2.0E–11	2.7E–12	5.3E–13	6.6E–16	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.9E–11	1.1E–10	2.1E–11	4.1E–10	9.5E–10	2.5E–10	2.6E–11	5.2E–10	NA	NA
Tc_{99}	4.1E–11	4.5E–11	7.3E–11	3.4E–10	4.6E–06	7.8E–07	7.9E–07	3.8E–06	NA	NA
Th_{230}	4.0E–06	1.2E–08	2.9E–11	9.8E–11	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	6.1E–07	6.1E–09	1.5E–11	5.2E–11	NA	NA	NA	NA	NA	NA
U_{234}	3.6E–06	1.4E–08	3.3E–10	4.0E–09	5.5E–05	8.3E–06	1.2E–07	1.5E–06	NA	NA
$U_{235/236}$	2.5E–07	1.0E–09	2.4E–11	2.9E–10	2.5E–06	3.8E–07	5.6E–09	7.0E–08	NA	NA
U_{238+2d}	6.6E–06	2.3E–08	5.3E–10	6.4E–09	9.3E–05	1.4E–05	2.1E–07	2.6E–06	NA	NA
Rn_{222+4d}	2.0E–06	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.7E–05	2.4E–07	2.2E–08	1.6E–07	1.6E–04	2.4E–05	1.1E–06	8.2E–06	6.7E–09	
Chemicals										
arsenic	1.6E–08	1.6E–08	1.3E–08	1.5E–09	2.4E–19	5.3E–20	2.1E–20	2.6E–21	ND	7.3E–22
beryllium	9.8E–10	4.0E–09	1.9E–09	6.8E–12	NA	NA	NA	NA	NA	NA
cadmium	2.9E–09	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	8.7E–08	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	2.0E–09	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	2.6E–17	3.0E–16	1.2E–19	1.5E–19	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	7.1E–14	1.3E–14	2.9E–14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.7E–13	3.0E–15	3.7E–15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.5E–16	2.8E–16	6.3E–20	8.5E–20	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.6E–15	4.3E–14	8.3E–19	1.7E–18	NA	NA	NA	NA	NA	NA
n–nitrosodiphenylamine	ND	1.3E–14	8.9E–17	1.2E–16	NA	NA	NA	NA	NA	NA
n–nitrosodipropylamine	ND	1.0E–12	5.1E–17	6.9E–17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.9E–10	1.7E–07	1.3E–09	1.6E–09	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E–09	1.3E–07	1.0E–10	1.3E–10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.9E–12	3.2E–12	4.1E–12	5.2E–12	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E–11	2.3E–10	8.2E–10	1.0E–09	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.9E–12	3.0E–11	1.1E–10	1.4E–10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E–12	1.2E–11	2.4E–10	3.0E–10	NA	NA	NA	NA	NA	NA
chrysene	2.5E–14	2.0E–13	2.7E–13	3.4E–13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.9E–12	7.6E–11	1.5E–09	1.9E–09	NA	NA	NA	NA	NA	NA
indeno(1,2,3–cd)pyrene	5.5E–12	4.1E–11	4.4E–10	5.5E–10	NA	NA	NA	NA	NA	NA
aroclor–1254	ND	1.2E–09	6.9E–09	8.7E–09	NA	NA	NA	NA	NA	NA
aroclor–1260	ND	8.7E–12	9.6E–10	1.2E–09	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	8.4E–14	1.2E–12	1.5E–12	NA	NA	NA	NA	NA	NA
4,4–dde	ND	2.7E–14	4.0E–14	5.1E–14	NA	NA	NA	NA	NA	NA
chlordane	3.0E–15	1.9E–14	1.8E–14	2.3E–14	NA	NA	NA	NA	NA	NA
dieldrin	5.4E–14	3.7E–13	3.6E–14	4.6E–14	NA	NA	NA	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	5.7E–14	3.4E–13	2.6E–10	3.7E–10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.5E–14	2.1E–13	2.4E–10	3.4E–10	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E–07	3.2E–07	2.7E–08	1.8E–08	2.4E–19	5.3E–20	2.1E–20	2.6E–21	0.0E+00	7.3E–22
Sum Chem (BaP for PAHs):	1.1E–07	3.2E–07	3.4E–08	2.6E–08	2.4E–19	5.3E–20	2.1E–20	2.6E–21	0.0E+00	7.3E–22
TOTAL ALL (TEF Approach):	1.8E–05	5.6E–07	4.9E–08	1.8E–07	1.6E–04	2.4E–05	1.1E–06	8.2E–06	6.7E–09	7.3E–22
TOTAL ALL (BaP Approach):	1.8E–05	5.6E–07	5.5E–08	1.8E–07	1.6E–04	2.4E–05	1.1E–06	8.2E–06	6.7E–09	7.3E–22

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-23i
ILCRs FOR RME OFF-PROPERTY FARMER NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	3.1E-14	3.7E-13	1.3E-12	1.8E-12	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E-11	7.9E-13	1.4E-14	5.2E-15	7.4E-08	1.3E-08	1.4E-10	5.1E-11	NA	NA
Pu_{238}	5.4E-10	1.9E-11	1.4E-15	1.1E-15	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.4E-11	3.2E-12	6.0E-16	4.8E-16	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	5.8E-09	4.8E-09	5.4E-10	3.9E-09	1.0E-13	1.9E-14	8.9E-16	6.5E-15	3.5E-16	NA
Ru_{106}	4.0E-13	5.4E-14	1.1E-14	1.3E-17	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.2E-13	1.8E-12	3.4E-13	6.7E-12	2.0E-11	5.1E-12	5.4E-13	1.1E-11	NA	NA
Tc_{99}	5.1E-13	5.6E-13	8.9E-13	4.2E-12	5.6E-06	9.5E-07	9.7E-07	4.6E-06	NA	NA
Th_{230}	7.1E-08	2.0E-10	5.2E-13	1.7E-12	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	9.8E-09	9.7E-11	2.5E-13	8.3E-13	NA	NA	NA	NA	NA	NA
U_{234}	5.4E-08	2.1E-10	5.0E-12	6.0E-11	3.3E-05	5.1E-06	7.5E-08	9.4E-07	NA	NA
$U_{235/236}$	3.8E-09	1.5E-11	3.6E-13	4.3E-12	1.5E-06	2.3E-07	3.4E-09	4.3E-08	NA	NA
U_{238+2d}	1.1E-07	3.7E-10	8.7E-12	1.0E-10	5.7E-05	8.6E-06	1.3E-07	1.6E-06	NA	NA
Rn_{222+4d}	1.3E-06	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.5E-06	5.8E-09	5.6E-10	4.1E-09	9.7E-05	1.5E-05	1.2E-06	7.2E-06	3.5E-16	
Chemicals										
arsenic	2.7E-10	2.7E-10	2.2E-10	2.7E-11	NA	NA	NA	NA	NA	NA
beryllium	1.6E-11	6.6E-11	3.2E-11	1.1E-13	NA	NA	NA	NA	NA	NA
cadmium	4.9E-11	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.5E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	3.4E-11	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	7.0E-19	7.9E-18	3.2E-21	4.1E-21	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.5E-15	2.7E-16	6.2E-16	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.4E-15	4.9E-17	6.2E-17	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.0E-17	6.2E-18	1.4E-21	1.9E-21	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E-17	9.9E-16	1.9E-20	3.9E-20	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	2.6E-16	1.7E-18	2.4E-18	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	2.7E-14	1.3E-18	1.8E-18	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.5E-11	5.4E-09	4.0E-11	5.0E-11	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E-10	4.0E-09	3.2E-12	4.1E-12	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	8.1E-14	6.6E-14	8.5E-14	1.1E-13	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.3E-13	4.9E-12	1.7E-11	2.2E-11	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	7.8E-14	6.0E-13	2.2E-12	2.8E-12	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.3E-14	2.6E-13	5.3E-12	6.7E-12	NA	NA	NA	NA	NA	NA
chrysene	5.1E-16	4.2E-15	5.4E-15	6.9E-15	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.1E-13	1.6E-12	3.1E-11	4.0E-11	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.1E-13	8.2E-13	8.6E-12	1.1E-11	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	2.6E-11	1.5E-10	1.9E-10	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	2.3E-13	2.5E-11	3.2E-11	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	1.9E-15	2.6E-14	3.3E-14	NA	NA	NA	NA	NA	NA
4,4-dde	ND	4.4E-16	6.5E-16	8.2E-16	NA	NA	NA	NA	NA	NA
chlordane	5.3E-17	3.4E-16	3.2E-16	4.0E-16	NA	NA	NA	NA	NA	NA
dieldrin	9.0E-16	6.1E-15	6.0E-16	7.7E-16	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.2E-15	6.9E-15	5.3E-12	7.6E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.0E-16	5.3E-15	6.2E-12	8.9E-12	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.0E-09	9.8E-09	5.5E-10	4.0E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	2.0E-09	9.8E-09	6.8E-10	5.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	1.5E-06	1.6E-08	1.1E-09	4.5E-09	9.7E-05	1.5E-05	1.2E-06	7.2E-06	3.5E-16	0.0E+00
TOTAL ALL (BaP Approach):	1.5E-06	1.6E-08	1.2E-09	4.7E-09	9.7E-05	1.5E-05	1.2E-06	7.2E-06	3.5E-16	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–24a
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.0E−07	7.5E−13	9.5E−13	1.8E−01	1.5E−06	1.9E−06	5.2E−05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.5E−04	1.1E−04	4.5E−05	7.8E−02	7.8E−02	3.1E−02	1.8E−02	3.8E−02	NA	1.1E−01	6.1E−02	2.3E−02	9.1E−03	ND	2.1E−03
arsenic	ND	5.6E−05	4.5E−05	5.4E−06	NA	NA	NA	NA	NA	NA	1.5E−02	3.3E−03	1.4E−03	1.6E−04	ND	4.6E−05
barium	1.8E−04	7.9E−06	1.3E−06	1.2E−05	1.8E−02	4.2E−03	4.0E−02	8.5E−03	3.0E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.3E−07	1.6E−07	5.7E−10	1.5E−04	2.9E−04	1.0E−06	6.9E−04	2.2E−02	NA	7.8E−11	1.5E−11	2.6E−12	9.6E−15	ND	2.2E−11
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	9.4E−05	2.7E−05	1.9E−04	1.0E−01	3.0E−02	2.2E−01	4.7E−03	3.0E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.4E−06	1.4E−05	1.5E−05	7.6E−03	2.3E−02	2.5E−02	1.2E−02	8.3E−03	NA	8.9E−03	2.6E−03	1.4E−03	1.5E−03	ND	1.1E−04
cobalt	6.3E−03	3.7E−07	2.6E−06	1.0E−06	9.0E−04	1.1E−02	4.4E−03	8.8E−04	6.3E−04	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.8E−05	4.1E−05	2.4E−05	2.9E−02	6.8E−02	4.1E−02	7.9E−04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	7.3E−06	6.5E−06	2.1E−05	1.9E−01	2.5E−01	7.9E−01	2.3E−03	1.5E−02	NA	1.5E+00	4.5E−01	2.3E−01	7.4E−01	ND	8.6E−02
manganese	1.3E−02	3.2E−05	7.5E−06	2.6E−05	5.6E−01	1.7E−01	5.9E−01	7.7E−02	8.3E−01	NA	8.7E−02	5.9E−02	6.9E−03	2.4E−02	ND	8.3E−03
mercury	8.3E−07	2.5E−06	2.0E−04	1.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.6E−06	1.5E−05	1.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.2E−05	1.1E−05	7.5E−06	2.5E−02	2.6E−02	1.7E−02	2.9E−03	4.7E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	7.9E−07	2.1E−06	2.3E−06	9.8E−04	3.0E−03	3.2E−03	2.7E−04	1.1E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.3E−05	2.0E−05	5.4E−04	1.3E−02	2.3E−02	6.1E−01	8.9E−04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	5.3E−06	9.1E−05	1.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	7.1E−04	1.6E−05	2.0E−04	3.2E−02	4.3E−03	5.2E−02	5.6E−02	3.6E−01	NA	1.2E+01	1.8E+00	2.6E−02	3.2E−01	ND	6.6E−01
vanadium	ND	6.3E−06	4.9E−06	1.6E−07	5.9E−03	1.1E−02	3.5E−04	1.4E−02	8.7E−03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	8.3E−05	2.0E−03	8.0E−04	4.6E−01	1.1E+01	4.5E+00	3.6E−03	4.5E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.6E−10	6.6E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.9E−12	1.3E−15	1.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.7E−05	2.1E−05	2.7E−05	7.4E−06	1.6E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−12	1.1E−10	2.0E−15	4.1E−15	2.1E−04	5.6E−09	1.1E−08	2.4E−07	2.3E−06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.2E−05	3.5E−05	4.4E−05	9.0E−06	2.0E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.5E−04	2.6E−06	3.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	7.2E−10	1.0E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	8.8E−10	8.7E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.0E−02	1.6E−03	2.6E−03	1.9E−03	1.7E+00	1.2E+01	6.9E+00	2.0E−01	1.3E+00		1.3E+01	2.3E+00	2.9E−01	1.1E+00	0.0E+00	7.6E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–24b
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.3E–08	1.7E–13	2.1E–13	1.8E–01	1.5E–06	1.9E–06	5.2E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	8.0E–05	5.8E–05	2.3E–05	NA	NA	NA	NA	NA	NA	5.3E–06	3.0E–06	1.1E–06	4.5E–07	ND	1.0E–07
arsenic	ND	2.2E–05	1.8E–05	2.2E–06	NA	NA	NA	NA	NA	NA	1.2E–02	2.7E–03	1.1E–03	1.3E–04	ND	3.8E–05
barium	6.8E–05	3.1E–06	5.1E–07	4.8E–06	1.0E–02	2.3E–03	2.2E–02	4.6E–03	1.6E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.2E–07	5.9E–08	2.1E–10	7.9E–05	1.5E–04	5.5E–07	3.6E–04	1.2E–02	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.9E–05	1.4E–05	1.0E–04	9.1E–02	2.7E–02	2.0E–01	4.2E–03	2.7E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.4E–06	5.7E–06	6.2E–06	5.5E–03	1.7E–02	1.9E–02	8.5E–03	6.0E–03	NA	3.0E–07	8.9E–08	4.7E–08	5.2E–08	ND	3.8E–09
cobalt	2.8E–03	1.7E–07	1.2E–06	4.6E–07	6.9E–04	8.5E–03	3.4E–03	6.8E–04	4.8E–04	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.2E–06	9.5E–06	5.7E–06	5.0E–02	1.2E–01	7.1E–02	1.4E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.6E–06	2.3E–06	7.4E–06	3.3E–01	4.3E–01	1.4E+00	4.1E–03	2.6E–02	NA	4.6E–01	1.4E–01	7.1E–02	2.3E–01	ND	2.7E–02
manganese	5.0E–03	1.2E–05	2.8E–06	1.0E–05	NA	NA	NA	NA	NA	NA	1.6E–04	1.1E–04	1.3E–05	4.5E–05	ND	1.5E–05
mercury	2.4E–07	7.2E–07	5.8E–05	4.2E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.1E–06	5.5E–06	5.5E–06	5.0E–02	1.9E–01	1.9E–01	5.8E–03	4.9E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	5.4E–06	5.2E–06	3.5E–06	2.3E–02	2.3E–02	1.6E–02	2.7E–03	4.3E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	4.1E–07	1.1E–06	1.2E–06	5.7E–04	1.7E–03	1.8E–03	1.6E–04	6.3E–05	NA	NA	NA	NA	NA	NA	NA
silver	ND	5.4E–06	8.4E–06	2.2E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.1E–06	5.3E–05	1.1E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	1.8E–04	4.2E–06	5.0E–05	6.2E–03	8.2E–04	9.8E–03	1.1E–02	6.8E–02	NA	3.4E–04	5.2E–05	7.7E–07	9.6E–06	ND	2.0E–05
vanadium	ND	2.5E–06	2.0E–06	6.3E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	7.3E–05	1.8E–03	7.0E–04	8.6E–02	2.1E+00	8.3E–01	6.6E–04	8.4E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.0E–10	5.5E–11	1.2E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.9E–12	1.3E–15	1.8E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.8E–13	8.1E–11	1.6E–15	3.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.0E–03	2.2E–05	2.8E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	6.8E–10	9.5E–09	1.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.3E–10	4.2E–11	5.4E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.9E–03	3.4E–03	2.0E–03	1.2E–03	8.4E–01	2.9E+00	2.7E+00	4.4E–02	1.5E–01		4.7E–01	1.4E–01	7.2E–02	2.3E–01	0.0E+00	2.7E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–24c
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.4E−08	1.7E−13	2.1E−13	NA	NA	NA	NA	NA	NA	1.3E+00	5.0E−01	2.0E−06	2.6E−06	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	4.7E−05	3.4E−05	1.4E−05	NA	NA	NA	NA	NA	NA	4.4E−03	2.5E−03	9.3E−04	3.7E−04	ND	8.4E−05
arsenic	ND	1.7E−05	1.4E−05	1.7E−06	NA	NA	NA	NA	NA	NA	3.3E−05	7.3E−06	2.9E−06	3.6E−07	ND	1.0E−07
barium	5.4E−05	2.4E−06	4.1E−07	3.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.0E−07	4.9E−08	1.8E−10	NA	NA	NA	NA	NA	NA	1.2E−08	2.4E−09	4.2E−10	1.5E−12	ND	3.6E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.7E−05	7.7E−06	5.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.4E−06	4.0E−06	4.3E−06	NA	NA	NA	NA	NA	NA	1.3E−02	3.8E−03	2.0E−03	2.2E−03	ND	1.6E−04
cobalt	1.9E−03	1.1E−07	7.9E−07	3.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.9E−06	8.7E−06	5.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	2.0E−06	1.8E−06	5.6E−06	NA	NA	NA	NA	NA	NA	6.4E−01	1.9E−01	9.8E−02	3.2E−01	ND	3.7E−02
manganese	4.0E−03	9.8E−06	2.3E−06	8.0E−06	NA	NA	NA	NA	NA	NA	8.7E−03	5.9E−03	6.9E−04	2.4E−03	ND	8.3E−04
mercury	2.5E−07	7.4E−07	6.0E−05	4.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.4E−06	3.7E−06	3.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.6E−06	3.4E−06	2.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.0E−07	8.1E−07	8.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.5E−06	5.4E−06	1.4E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.5E−06	2.6E−05	5.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	2.2E−04	5.1E−06	6.2E−05	5.7E−03	7.6E−04	9.1E−03	9.9E−03	6.3E−02	NA	1.6E+01	2.4E+00	3.6E−02	4.5E−01	ND	9.2E−01
vanadium	ND	1.8E−06	1.4E−06	4.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.6E−05	6.3E−04	2.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.5E−10	2.8E−11	6.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.7E−02	1.9E−02	5.4E−07	7.0E−07	2.8E−01	2.5E−03
chloroform	ND	2.2E−12	4.9E−16	6.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	3.5E−05	ND
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.4E−01	1.7E−01	2.4E−05	3.1E−05	ND	3.8E−02
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E+00	1.7E−01	4.8E−06	1.1E−05	ND	1.5E−01
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E−13	4.1E−11	7.9E−16	1.6E−15	NA	NA	NA	NA	NA	NA	3.2E−11	4.6E−12	2.7E−17	6.1E−17	8.6E−12	1.2E−12
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.1E−03	1.5E−03	6.8E−08	8.7E−08	ND	3.1E−04
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.2E−04	1.6E−06	2.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.9E−10	4.1E−09	5.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.3E−10	3.2E−11	4.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	6.0E−03	5.9E−04	8.1E−04	5.7E−04	5.7E−03	7.6E−04	9.1E−03	9.9E−03	6.3E−02		2.0E+01	3.5E+00	1.4E−01	7.8E−01	2.8E−01	1.2E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–24d
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.4E−08	1.0E−13	1.3E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	7.0E−05	5.1E−05	2.0E−05	NA	NA	NA	NA	NA	NA	1.7E−02	1.0E−02	3.7E−03	1.5E−03	ND	3.4E−04
arsenic	ND	2.2E−05	1.8E−05	2.2E−06	NA	NA	NA	NA	NA	NA	3.5E−02	7.7E−03	3.1E−03	3.8E−04	ND	1.1E−04
barium	4.5E−05	2.0E−06	3.4E−07	3.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	9.3E−08	4.4E−08	1.6E−10	NA	NA	NA	NA	NA	NA	2.9E−05	5.8E−06	1.0E−06	3.6E−09	ND	8.5E−06
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.4E−05	9.7E−06	7.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.4E−06	4.0E−06	4.3E−06	NA	NA	NA	NA	NA	NA	1.8E−03	5.5E−04	2.9E−04	3.2E−04	ND	2.4E−05
cobalt	1.9E−03	1.1E−07	7.8E−07	3.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.8E−06	6.2E−06	3.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.8E−06	1.6E−06	5.2E−06	NA	NA	NA	NA	NA	NA	1.1E−01	3.4E−02	1.8E−02	5.7E−02	ND	6.6E−03
manganese	4.0E−03	9.9E−06	2.3E−06	8.1E−06	NA	NA	NA	NA	NA	NA	5.6E−02	3.8E−02	4.5E−03	1.6E−02	ND	5.4E−03
mercury	1.7E−07	4.9E−07	4.0E−05	2.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.2E−06	3.2E−06	3.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	4.1E−06	4.0E−06	2.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.7E−07	7.4E−07	7.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	4.1E−06	6.4E−06	1.7E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.9E−06	3.2E−05	6.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.3E−04	3.0E−06	3.6E−05	5.2E−03	7.0E−04	8.4E−03	9.0E−03	5.8E−02	NA	1.0E−01	1.5E−02	2.3E−04	2.8E−03	ND	5.8E−03
vanadium	ND	1.7E−06	1.4E−06	4.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.6E−05	6.3E−04	2.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.4E−10	2.5E−11	5.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.9E−12	4.2E−16	5.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E−13	3.0E−11	5.8E−16	1.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.0E−03	7.6E−06	9.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.3E−10	3.2E−09	4.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.0E−10	2.0E−11	2.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	6.0E−03	1.4E−03	8.2E−04	6.0E−04	5.2E−03	7.0E−04	8.4E−03	9.0E−03	5.8E−02		3.3E−01	1.1E−01	2.9E−02	7.8E−02	0.0E+00	1.8E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–24e
HAZARD QUOTIENTS FOR RME OFF–PROPERTY FARMER
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.5E–08	3.2E–13	4.1E–13	1.9E–01	1.5E–06	1.9E–06	5.3E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	9.0E–05	6.5E–05	2.6E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	3.4E–05	2.7E–05	3.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.2E–04	5.5E–06	9.3E–07	8.6E–06	9.1E–03	2.1E–03	2.0E–02	4.2E–03	1.5E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.4E–07	1.1E–07	4.1E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.8E–05	1.9E–05	1.4E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.9E–06	9.9E–06	1.1E–05	NA	NA	NA	NA	NA	NA	1.3E–14	3.9E–15	2.1E–15	2.3E–15	ND	1.7E–16
cobalt	4.3E–03	2.6E–07	1.8E–06	7.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.1E–05	2.4E–05	1.4E–05	4.1E–02	9.6E–02	5.7E–02	1.1E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	4.0E–06	3.5E–06	1.1E–05	6.2E–02	8.2E–02	2.6E–01	7.8E–04	5.0E–03	NA	1.7E–15	5.2E–16	2.7E–16	8.6E–16	ND	1.0E–16
manganese	8.2E–03	2.0E–05	4.7E–06	1.6E–05	1.9E–01	5.8E–02	2.0E–01	2.7E–02	2.8E–01	NA	7.4E–20	5.0E–20	5.9E–21	2.1E–20	ND	7.1E–21
mercury	5.5E–07	1.6E–06	1.3E–04	9.5E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	4.0E–06	1.0E–05	1.0E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	8.8E–06	8.5E–06	5.7E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	6.0E–07	1.6E–06	1.7E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.1E–06	1.3E–05	3.4E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	4.6E–06	7.9E–05	1.6E–05	6.5E–04	1.3E–01	2.6E–02	1.1E–02	3.6E–03	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	3.6E–04	8.4E–06	1.0E–04	9.6E–03	1.3E–03	1.5E–02	1.7E–02	1.1E–01	NA	4.5E–04	6.8E–05	1.0E–06	1.3E–05	ND	2.6E–05
vanadium	ND	4.1E–06	3.2E–06	1.0E–07	4.1E–03	7.6E–03	2.4E–04	9.4E–03	6.0E–03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.2E–04	2.8E–03	1.1E–03	1.2E–01	3.0E+00	1.2E+00	9.5E–04	1.2E–03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	6.0E–10	1.1E–10	2.5E–10	3.5E–05	1.5E–05	3.3E–05	9.2E–06	1.3E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.2E–11	2.6E–15	3.6E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.9E–04	6.9E–05	8.8E–05	2.4E–05	5.4E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.4E–12	2.8E–10	5.4E–15	1.1E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.3E–04	8.9E–05	1.1E–04	2.3E–05	5.1E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	8.3E–04	6.0E–06	7.7E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.2E–09	1.7E–08	2.1E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	6.1E–10	6.0E–11	7.6E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.3E–02	1.6E–03	3.2E–03	1.8E–03	6.3E–01	3.4E+00	1.8E+00	7.1E–02	4.1E–01		4.5E–04	6.8E–05	1.0E–06	1.3E–05	0.0E+00	2.6E–05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII-24f
HAZARD QUOTIENTS FOR RME OFF-PROPERTY FARMER
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.5E-08	3.2E-13	4.1E-13	NA	NA	NA	NA	NA	NA	3.7E-01	1.4E-01	5.7E-07	7.3E-07	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	7.0E-05	5.1E-05	2.0E-05	NA	NA	NA	NA	NA	NA	3.1E-05	1.8E-05	6.5E-06	2.6E-06	ND	5.9E-07
arsenic	ND	2.6E-05	2.1E-05	2.5E-06	NA	NA	NA	NA	NA	NA	9.5E-15	2.1E-15	8.4E-16	1.0E-16	ND	2.9E-17
barium	8.2E-05	3.7E-06	6.2E-07	5.8E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.5E-07	7.4E-08	2.6E-10	NA	NA	NA	NA	NA	NA	1.0E-19	2.0E-20	3.5E-21	1.3E-23	ND	3.0E-20
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.3E-05	1.2E-05	8.9E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.8E-06	6.5E-06	7.0E-06	NA	NA	NA	NA	NA	NA	6.2E-03	1.8E-03	9.8E-04	1.1E-03	ND	7.9E-05
cobalt	2.8E-03	1.7E-07	1.2E-06	4.6E-07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	8.0E-06	1.8E-05	1.1E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	3.3E-06	2.9E-06	9.3E-06	NA	NA	NA	NA	NA	NA	4.4E-01	1.3E-01	6.8E-02	2.2E-01	ND	2.5E-02
manganese	5.9E-03	1.5E-05	3.4E-06	1.2E-05	NA	NA	NA	NA	NA	NA	4.9E-04	3.3E-04	3.9E-05	1.4E-04	ND	4.7E-05
mercury	3.6E-07	1.1E-06	8.5E-05	6.1E-07	NA	NA	NA	NA	NA	NA	5.3E-08	1.4E-08	6.6E-07	4.8E-09	ND	1.0E-09
molybdenum	ND	2.5E-06	6.4E-06	6.4E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	5.4E-06	5.2E-06	3.5E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.8E-07	1.0E-06	1.1E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	6.0E-06	9.3E-06	2.5E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.4E-06	4.2E-05	8.4E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.8E-04	6.4E-06	7.7E-05	5.2E-03	7.0E-04	8.4E-03	9.0E-03	5.8E-02	NA	8.0E+00	1.2E+00	1.8E-02	2.2E-01	ND	4.6E-01
vanadium	ND	2.8E-06	2.2E-06	7.1E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.8E-05	9.1E-04	3.6E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.9E-10	3.5E-11	7.8E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.0E-09	1.2E-09	3.5E-14	4.5E-14	1.8E-08	1.6E-10
chloroform	ND	2.9E-12	6.4E-16	8.7E-16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	1.1E-08	ND
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E-01	4.2E-02	6.1E-06	7.8E-06	ND	9.6E-03
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.5E-01	4.6E-02	1.3E-06	2.9E-06	ND	3.9E-02
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E-13	5.8E-11	1.1E-15	2.3E-15	NA	NA	NA	NA	NA	NA	5.7E-17	8.1E-18	4.7E-23	1.1E-22	1.5E-17	2.2E-18
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1E-03	7.6E-04	3.4E-08	4.4E-08	ND	1.6E-04
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.3E-04	1.7E-06	2.1E-06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	3.6E-10	5.0E-09	6.4E-09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.7E-10	3.6E-11	4.7E-11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.8E-03	7.4E-04	1.2E-03	8.7E-04	5.2E-03	7.0E-04	8.4E-03	9.0E-03	5.8E-02		9.3E+00	1.6E+00	8.7E-02	4.4E-01	2.9E-08	5.3E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

TABLE A.VII-24g
HAZARD QUOTIENTS FOR RME OFF-PROPERTY FARMER AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	3.9E-08	2.8E-13	3.5E-13	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	7.6E-05	5.6E-05	2.2E-05	9.2E-12	5.2E-12	1.9E-12	7.8E-13	ND	1.8E-13
arsenic	ND	2.6E-05	2.1E-05	2.5E-06	8.8E-23	1.9E-23	7.8E-24	9.4E-25	ND	2.7E-25
barium	8.2E-05	3.7E-06	6.2E-07	5.8E-06	NA	NA	NA	NA	NA	NA
beryllium	ND	1.6E-07	7.8E-08	2.8E-10	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	5.0E-05	1.4E-05	1.0E-04	NA	NA	NA	NA	NA	NA
chromium vi	ND	4.3E-06	7.2E-06	7.9E-06	3.1E-09	9.2E-10	4.9E-10	5.4E-10	ND	4.0E-11
cobalt	3.0E-03	1.8E-07	1.2E-06	5.0E-07	NA	NA	NA	NA	NA	NA
copper	ND	6.8E-06	1.5E-05	9.1E-06	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	3.4E-06	3.1E-06	9.8E-06	3.2E-09	9.8E-10	5.0E-10	1.6E-09	ND	1.9E-10
manganese	6.4E-03	1.6E-05	3.6E-06	1.3E-05	8.6E-09	5.8E-09	6.9E-10	2.4E-09	ND	8.2E-10
mercury	4.2E-07	1.2E-06	1.0E-04	7.2E-07	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.5E-06	6.4E-06	6.4E-06	NA	NA	NA	NA	NA	NA
nickel	ND	6.2E-06	6.0E-06	4.0E-06	NA	NA	NA	NA	NA	NA
selenium	ND	3.8E-07	1.0E-06	1.1E-06	NA	NA	NA	NA	NA	NA
silver	ND	5.4E-06	8.4E-06	2.2E-04	NA	NA	NA	NA	NA	NA
thallium	ND	2.9E-06	5.0E-05	1.0E-05	NA	NA	NA	NA	NA	NA
uranium-total	ND	3.3E-04	7.7E-06	9.3E-05	1.2E-02	1.8E-03	2.7E-05	3.3E-04	ND	6.7E-04
vanadium	ND	2.9E-06	2.3E-06	7.4E-08	NA	NA	NA	NA	NA	NA
zinc	ND	6.2E-05	1.5E-03	5.9E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.2E-10	5.8E-11	1.3E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.9E-12	1.3E-15	1.8E-15	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	1.7E-02	4.5E-03	6.5E-07	8.4E-07	ND	1.0E-03
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-12	1.2E-10	2.4E-15	4.9E-15	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.6E-04	3.3E-06	4.2E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	5.9E-10	8.2E-09	1.0E-08	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.0E-10	3.9E-11	5.0E-11	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	9.5E-03	1.1E-03	1.8E-03	1.1E-03	2.9E-02	6.3E-03	2.7E-05	3.3E-04	0.0E+00	1.7E-03

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-24h
HAZARD QUOTIENTS FOR RME OFF-PROPERTY FARMER
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.5E-08	3.2E-13	4.1E-13	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	9.0E-05	6.5E-05	2.6E-05	2.2E-05	1.3E-05	4.7E-06	1.9E-06	ND	4.2E-07
arsenic	ND	3.0E-05	2.4E-05	2.9E-06	4.6E-16	1.0E-16	4.1E-17	4.9E-18	ND	1.4E-18
barium	9.5E-05	4.3E-06	7.2E-07	6.7E-06	NA	NA	NA	NA	NA	NA
beryllium	ND	1.9E-07	8.8E-08	3.2E-10	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	5.5E-05	1.5E-05	1.1E-04	NA	NA	NA	NA	NA	NA
chromium vi	ND	4.7E-06	8.0E-06	8.7E-06	7.5E-04	2.2E-04	1.2E-04	1.3E-04	ND	9.6E-06
cobalt	3.5E-03	2.1E-07	1.4E-06	5.7E-07	NA	NA	NA	NA	NA	NA
copper	ND	7.8E-06	1.7E-05	1.0E-05	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	4.0E-06	3.6E-06	1.2E-05	1.3E-01	3.8E-02	1.9E-02	6.3E-02	ND	7.2E-03
manganese	7.3E-03	1.8E-05	4.1E-06	1.4E-05	1.6E-04	1.1E-04	1.2E-05	4.4E-05	ND	1.5E-05
mercury	5.0E-07	1.5E-06	1.2E-04	8.6E-07	1.2E-08	3.3E-09	1.5E-07	1.1E-09	ND	2.4E-10
molybdenum	ND	2.9E-06	7.6E-06	7.6E-06	NA	NA	NA	NA	NA	NA
nickel	ND	6.7E-06	6.5E-06	4.3E-06	NA	NA	NA	NA	NA	NA
selenium	ND	4.1E-07	1.1E-06	1.2E-06	NA	NA	NA	NA	NA	NA
silver	ND	6.5E-06	1.0E-05	2.7E-04	NA	NA	NA	NA	NA	NA
thallium	ND	3.0E-06	5.2E-05	1.0E-05	NA	NA	NA	NA	NA	NA
uranium-total	ND	4.2E-04	9.7E-06	1.2E-04	1.9E+00	2.8E-01	4.2E-03	5.2E-02	ND	1.1E-01
vanadium	ND	3.3E-06	2.6E-06	8.2E-08	NA	NA	NA	NA	NA	NA
zinc	ND	5.2E-05	1.3E-03	5.0E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.5E-10	4.6E-11	1.0E-10	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.6E-12	1.0E-15	1.4E-15	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E-12	9.3E-11	1.8E-15	3.7E-15	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.4E-04	2.4E-06	3.1E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	5.0E-10	6.9E-09	8.8E-09	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.6E-10	4.5E-11	5.8E-11	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.1E-02	1.0E-03	1.6E-03	1.1E-03	2.0E+00	3.2E-01	2.4E-02	1.2E-01	0.0E+00	1.1E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-24i
HAZARD QUOTIENTS FOR RME OFF-PROPERTY FARMER NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	7.2E-10	5.2E-15	6.6E-15	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	1.6E-06	1.1E-06	4.6E-07	8.6E-15	4.9E-15	1.8E-15	7.3E-16	ND	1.7E-16
arsenic	ND	5.2E-07	4.2E-07	5.1E-08	NA	NA	NA	NA	NA	NA
barium	1.6E-06	7.3E-08	1.2E-08	1.2E-07	NA	NA	NA	NA	NA	NA
beryllium	ND	3.1E-09	1.5E-09	5.3E-12	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	9.4E-07	2.7E-07	1.9E-06	NA	NA	NA	NA	NA	NA
chromium vi	ND	7.9E-08	1.3E-07	1.5E-07	7.3E-04	2.2E-04	1.2E-04	1.3E-04	ND	9.4E-06
cobalt	5.6E-05	3.3E-09	2.3E-08	9.2E-09	NA	NA	NA	NA	NA	NA
copper	ND	1.2E-07	2.7E-07	1.6E-07	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	6.3E-08	5.6E-08	1.8E-07	3.7E-02	1.1E-02	5.6E-03	1.8E-02	ND	2.1E-03
manganese	1.2E-04	3.0E-07	7.0E-08	2.4E-07	3.4E-06	2.3E-06	2.8E-07	9.7E-07	ND	3.3E-07
mercury	8.3E-09	2.5E-08	2.0E-06	1.4E-08	3.9E-11	1.1E-11	4.9E-10	3.6E-12	ND	7.5E-13
molybdenum	ND	4.9E-08	1.3E-07	1.3E-07	NA	NA	NA	NA	NA	NA
nickel	ND	1.2E-07	1.1E-07	7.5E-08	NA	NA	NA	NA	NA	NA
selenium	ND	7.9E-09	2.1E-08	2.3E-08	NA	NA	NA	NA	NA	NA
silver	ND	1.1E-07	1.7E-07	4.5E-06	NA	NA	NA	NA	NA	NA
thallium	ND	5.4E-08	9.4E-07	1.9E-07	NA	NA	NA	NA	NA	NA
uranium-total	ND	6.6E-06	1.5E-07	1.9E-06	1.1E+00	1.7E-01	2.6E-03	3.2E-02	ND	6.5E-02
vanadium	ND	5.5E-08	4.3E-08	1.4E-09	NA	NA	NA	NA	NA	NA
zinc	ND	1.1E-06	2.6E-05	1.0E-05	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	5.4E-12	9.8E-13	2.2E-12	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.0E-13	2.3E-17	3.1E-17	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.6E-14	2.2E-12	4.2E-17	8.5E-17	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.0E-05	7.6E-08	9.7E-08	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	1.1E-11	1.5E-10	2.0E-10	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	7.7E-12	7.5E-13	9.6E-13	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.8E-04	2.2E-05	3.2E-05	2.0E-05	1.2E+00	1.8E-01	8.3E-03	5.0E-02	0.0E+00	6.7E-02

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25a
ILCRs FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	4.0E−14	2.0E−12	3.1E−12	2.6E−11	3.0E−08	1.1E−07	9.4E−07	8.8E−09	NA	4.7E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.0E−11	4.7E−12	3.7E−14	8.0E−14	NA	NA	NA	NA	NA	NA	5.1E−08	1.6E−08	7.4E−11	1.6E−10	NA	NA
Pu_{238}	1.6E−10	2.3E−11	7.5E−16	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.2E−08	3.4E−09	2.8E−13	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	7.8E−12	2.6E−11	1.3E−12	5.6E−11	NA	NA	NA	NA	NA	NA	2.1E−06	6.8E−07	1.4E−08	6.1E−07	1.7E−07	NA
Ru_{106}	3.4E−11	1.9E−11	1.7E−12	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.6E−10	3.8E−09	3.0E−10	3.6E−08	1.0E−06	2.0E−07	2.4E−05	3.7E−08	NA	ND	8.5E−09	3.9E−09	1.8E−10	2.1E−08	NA	NA
Tc_{99}	1.2E−12	5.3E−12	3.8E−12	1.0E−10	3.3E−07	1.1E−06	3.1E−05	1.9E−09	NA	6.5E−12	2.9E−06	8.6E−07	3.9E−07	1.1E−05	NA	NA
Th_{230}	8.5E−09	1.0E−10	1.1E−13	2.2E−12	2.9E−10	1.4E−11	2.8E−10	3.0E−08	NA	9.3E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.2E−07	1.7E−08	1.9E−11	3.8E−10	1.1E−09	5.4E−11	1.1E−09	1.1E−07	NA	4.2E−05	NA	NA	NA	NA	NA	NA
U_{234}	1.1E−04	1.8E−06	1.8E−08	1.3E−06	4.4E−08	2.6E−09	1.8E−07	9.7E−08	NA	1.4E−09	1.5E−05	3.8E−06	2.5E−08	1.9E−06	NA	NA
$U_{235/236}$	NA	NA	NA	NA	1.1E−08	6.5E−10	4.6E−08	2.4E−08	NA	2.7E−06	6.6E−07	1.7E−07	1.2E−09	8.4E−08	NA	NA
U_{238+2d}	NA	NA	NA	NA	1.1E−07	6.7E−09	4.7E−07	2.5E−07	NA	2.4E−06	2.5E−05	6.5E−06	4.3E−08	3.2E−06	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.1E−04	1.8E−06	1.9E−08	1.3E−06	1.6E−06	1.4E−06	5.6E−05	5.6E−07		5.2E−05	4.5E−05	1.2E−05	4.7E−07	1.7E−05	1.7E−07	
Chemicals																
arsenic	2.5E−09	1.0E−08	3.7E−09	2.6E−09	NA	NA	NA	NA	NA	NA	1.6E−06	6.1E−07	1.1E−07	7.8E−08	ND	3.4E−09
beryllium	1.5E−10	2.5E−09	5.2E−10	1.1E−11	1.1E−06	9.6E−07	2.0E−08	6.6E−06	6.6E−06	NA	3.3E−13	1.1E−13	8.8E−15	1.9E−16	ND	6.7E−14
cadmium	4.1E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.3E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.9E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.7E−18	1.3E−16	2.3E−20	1.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.6E−14	2.9E−15	3.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.6E−14	4.7E−16	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−17	1.2E−16	1.2E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E−16	1.7E−14	1.4E−19	1.7E−18	3.3E−08	4.0E−13	4.7E−12	4.9E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	5.6E−15	1.6E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	4.1E−13	9.0E−18	7.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.0E−11	6.4E−08	2.1E−10	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.3E−10	4.8E−08	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E−13	1.4E−12	8.2E−13	6.1E−12	1.6E−08	1.7E−08	1.3E−07	6.9E−09	6.9E−09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.3E−12	1.0E−10	1.6E−10	1.2E−09	4.9E−07	1.8E−06	1.4E−05	3.8E−07	3.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.1E−13	1.3E−11	2.1E−11	1.6E−10	6.9E−08	2.7E−07	2.0E−06	5.4E−08	5.4E−08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E−13	4.9E−12	4.5E−11	3.4E−10	1.3E−08	4.8E−07	3.6E−06	2.7E−08	2.7E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.9E−15	9.6E−14	5.6E−14	4.1E−13	1.2E−09	1.3E−09	1.0E−08	5.3E−10	5.3E−10	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E−12	3.3E−11	2.8E−10	2.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.0E−13	1.8E−11	8.6E−11	6.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.4E−10	1.9E−09	1.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.6E−12	1.7E−10	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.3E−14	2.7E−13	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.0E−14	1.3E−14	9.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.9E−16	1.0E−14	4.3E−15	3.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.8E−15	2.4E−13	1.1E−14	8.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.8E−15	1.4E−13	4.8E−11	4.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.4E−15	8.2E−14	4.3E−11	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E−08	1.3E−07	7.2E−09	2.5E−08	1.7E−06	3.6E−06	1.9E−05	7.1E−06	7.1E−06		1.6E−06	6.1E−07	1.1E−07	7.8E−08	0.0E+00	3.4E−09
Sum Chem (BaP for PAHs):	1.7E−08	1.3E−07	8.4E−09	3.4E−08	2.8E−06	1.5E−05	1.0E−04	8.1E−06	8.1E−06		1.6E−06	6.1E−07	1.1E−07	7.8E−08	0.0E+00	3.4E−09
TOTAL ALL (TEF Approach):	1.1E−04	1.9E−06	2.6E−08	1.3E−06	3.3E−06	5.0E−06	7.6E−05	7.6E−06	7.1E−06	5.2E−05	4.7E−05	1.3E−05	5.8E−07	1.7E−05	1.7E−07	3.4E−09
TOTAL ALL (BaP Approach):	1.1E−04	1.9E−06	2.7E−08	1.4E−06	4.4E−06	1.6E−05	1.6E−04	8.7E−06	8.1E−06	5.2E−05	4.7E−05	1.3E−05	5.8E−07	1.7E−05	1.7E−07	3.4E−09

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25b
ILCRs FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.9E−14	9.4E−13	1.5E−12	1.2E−11	3.4E−08	1.3E−07	1.1E−06	1.0E−08	NA	5.3E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	9.1E−12	2.1E−12	1.7E−14	3.6E−14	NA	NA	NA	NA	NA	NA	1.0E−11	3.2E−12	1.5E−14	3.2E−14	NA	NA
Pu_{238}	2.9E−10	4.2E−11	1.4E−15	6.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	5.7E−11	9.0E−12	7.4E−16	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.5E−09	1.2E−08	6.0E−10	2.5E−08	NA	NA	NA	NA	NA	NA	1.8E−06	5.6E−07	1.2E−08	5.0E−07	1.4E−07	NA
Ru_{105}	4.4E−13	2.4E−13	2.2E−14	1.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E−13	3.4E−12	2.8E−13	3.3E−11	4.3E−07	8.2E−08	9.6E−06	1.5E−08	NA	ND	8.6E−15	3.9E−15	1.8E−16	2.1E−14	NA	NA
Tc_{99}	1.2E−13	5.5E−13	3.9E−13	1.1E−11	1.2E−07	4.2E−07	1.1E−05	7.1E−10	NA	2.4E−12	1.2E−07	3.6E−08	1.6E−08	4.6E−07	NA	NA
Th_{230}	1.3E−08	1.6E−10	1.8E−13	3.5E−12	1.3E−10	6.5E−12	1.3E−10	1.4E−08	NA	4.2E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	3.5E−09	1.4E−10	1.6E−13	3.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.2E−08	3.5E−10	3.7E−12	2.6E−10	1.2E−08	6.9E−10	4.8E−08	2.6E−08	NA	3.6E−10	4.3E−10	1.1E−10	7.5E−13	5.5E−11	NA	NA
$U_{235/236}$	1.8E−09	3.1E−11	3.2E−13	2.3E−11	NA	NA	NA	NA	NA	NA	2.0E−11	5.2E−12	3.4E−14	2.5E−12	NA	NA
U_{238+2d}	5.0E−08	7.1E−10	7.4E−12	5.2E−10	2.3E−08	1.3E−09	9.4E−08	5.0E−08	NA	4.8E−07	7.3E−10	1.9E−10	1.3E−12	9.3E−11	NA	NA
Rn_{222+4d}	3.8E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.3E−07	1.3E−08	6.2E−10	2.6E−08	6.2E−07	6.3E−07	2.2E−05	1.2E−07		5.8E−06	1.9E−06	5.9E−07	2.8E−08	9.6E−07	1.4E−07	
Chemicals																
arsenic	9.9E−10	4.1E−09	1.5E−09	1.0E−09	NA	NA	NA	NA	NA	NA	1.3E−06	5.0E−07	8.9E−08	6.3E−08	ND	2.7E−09
beryllium	5.5E−11	9.2E−10	2.0E−10	4.1E−12	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06	NA	NA	NA	NA	NA	NA	NA
cadmium	2.1E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	5.3E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	1.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	3.8E−18	1.8E−16	3.2E−20	2.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.9E−14	2.4E−15	3.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.3E−14	2.1E−16	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−17	1.2E−16	1.2E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−16	1.3E−14	1.1E−19	1.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	7.6E−15	2.2E−17	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.1E−13	1.3E−17	1.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.9E−10	5.4E−07	1.7E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.6E−09	4.0E−07	1.4E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.1E−13	1.0E−12	6.0E−13	4.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.6E−12	8.2E−11	1.3E−10	9.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.3E−13	1.1E−11	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.4E−13	4.3E−12	4.0E−11	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.2E−15	7.3E−14	4.3E−14	3.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.4E−13	2.6E−11	2.3E−10	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.8E−13	1.5E−11	6.9E−11	5.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.7E−10	9.5E−10	7.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.2E−12	2.5E−10	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.0E−14	2.5E−13	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	6.9E−15	4.5E−15	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.4E−16	9.0E−15	3.7E−15	2.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.3E−15	1.2E−13	5.2E−15	3.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	8.2E−15	2.0E−13	6.9E−11	5.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.9E−15	1.2E−13	6.2E−11	5.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E−08	9.5E−07	5.4E−09	2.9E−08	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06		1.3E−06	5.0E−07	8.9E−08	6.3E−08	0.0E+00	2.7E−09
Sum Chem (BaP for PAHs):	1.1E−08	9.5E−07	6.4E−09	3.6E−08	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06		1.3E−06	5.0E−07	8.9E−08	6.3E−08	0.0E+00	2.7E−09
TOTAL ALL (TEF Approach):	1.4E−07	9.6E−07	6.0E−09	5.5E−08	1.2E−06	1.1E−06	2.2E−05	3.6E−06	3.5E−06	5.8E−06	3.2E−06	1.1E−06	1.2E−07	1.0E−06	1.4E−07	2.7E−09
TOTAL ALL (BaP Approach):	1.4E−07	9.6E−07	7.0E−09	6.2E−08	1.2E−06	1.1E−06	2.2E−05	3.6E−06	3.5E−06	5.8E−06	3.2E−06	1.1E−06	1.2E−07	1.0E−06	1.4E−07	2.7E−09

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25c
ILCRs FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.5E−14	7.2E−13	1.1E−12	9.4E−12	2.4E−08	9.2E−08	7.5E−07	7.1E−09	NA	3.7E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.9E−12	1.8E−12	1.5E−14	3.1E−14	NA	NA	NA	NA	NA	NA	7.2E−08	2.3E−08	1.1E−10	2.3E−10	NA	NA
Pu_{238}	4.0E−10	5.9E−11	1.9E−15	9.0E−15	NA	NA	NA	NA	NA	NA	7.5E−17	2.0E−17	3.2E−22	1.6E−21	NA	NA
Pu_{239240}	5.1E−11	8.1E−12	6.7E−16	3.1E−15	NA	NA	NA	NA	NA	NA	1.1E−16	2.9E−17	5.1E−22	2.5E−21	NA	NA
Ra_{226+8d}	1.9E−09	6.5E−09	3.3E−10	1.4E−08	NA	NA	NA	NA	NA	NA	3.3E−07	1.0E−07	2.2E−09	9.4E−08	2.6E−08	NA
Ru_{106}	2.4E−13	1.3E−13	1.2E−14	8.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E−13	3.4E−12	2.8E−13	3.3E−11	8.1E−07	1.6E−07	1.8E−05	2.9E−08	NA	ND	4.5E−08	2.0E−08	9.4E−10	1.1E−07	NA	NA
Tc_{99}	1.5E−13	6.8E−13	4.8E−13	1.3E−11	NA	NA	NA	NA	NA	NA	4.0E−06	1.2E−06	5.4E−07	1.5E−05	NA	NA
Th_{230}	3.2E−08	3.8E−10	4.3E−13	8.4E−12	1.1E−10	5.2E−12	1.0E−10	1.1E−08	NA	3.4E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.1E−09	2.1E−10	2.3E−13	4.6E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.1E−08	5.0E−10	5.1E−12	3.6E−10	8.8E−09	5.2E−10	3.7E−08	1.9E−08	NA	2.7E−10	2.0E−05	5.3E−06	3.6E−08	2.6E−06	NA	NA
U_{235236}	2.3E−09	3.9E−11	4.0E−13	2.8E−11	NA	NA	NA	NA	NA	NA	9.2E−07	2.4E−07	1.6E−09	1.2E−07	NA	NA
U_{238+2d}	6.3E−08	9.0E−10	9.3E−12	6.5E−10	1.4E−08	8.5E−10	6.0E−08	3.2E−08	NA	3.0E−07	3.5E−05	9.1E−06	6.1E−08	4.4E−06	NA	NA
Rn_{222+4d}	1.0E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.5E−07	8.6E−09	3.4E−10	1.5E−08	8.6E−07	2.5E−07	1.9E−05	9.8E−08		4.0E−06	6.0E−05	1.6E−05	6.4E−07	2.2E−05	2.6E−08	
Chemicals																
arsenic	7.6E−10	3.1E−09	1.1E−09	7.9E−10	NA	NA	NA	NA	NA	NA	3.5E−09	1.3E−09	2.4E−10	1.7E−10	ND	7.3E−12
beryllium	4.6E−11	7.7E−10	1.6E−10	3.4E−12	NA	NA	NA	NA	NA	NA	5.3E−11	1.8E−11	1.4E−12	3.0E−14	ND	1.1E−11
cadmium	1.2E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	8.7E−11	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.1E−18	5.3E−17	9.4E−21	7.1E−20	NA	NA	NA	NA	NA	NA	1.8E−11	9.6E−12	9.6E−16	7.4E−15	1.4E−10	2.4E−12
bis(2−ethylhexyl)phthalate	ND	1.5E−14	1.2E−15	1.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.0E−14	1.5E−16	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.8E−17	4.6E−17	4.6E−21	3.7E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6E−04	1.6E−04	1.0E−08	7.9E−08	1.3E−03	1.5E−05
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.3E−03	1.2E−03	1.5E−08	2.0E−07	ND	4.1E−04
methylene chloride	5.8E−17	6.5E−15	5.6E−20	6.7E−19	NA	NA	NA	NA	NA	NA	2.9E−15	7.3E−16	1.9E−21	2.5E−20	4.7E−15	7.9E−17
n−nitrosodiphenylamine	ND	2.8E−15	8.1E−18	6.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.8E−13	3.9E−18	3.1E−17	NA	NA	NA	NA	NA	NA	1.6E−08	5.7E−09	6.8E−14	5.6E−13	ND	4.7E−10
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.4E−11	4.0E−08	1.3E−10	9.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.7E−10	3.0E−08	1.1E−11	7.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.6E−13	5.2E−13	3.0E−13	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.2E−12	3.9E−11	6.1E−11	4.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E−13	4.8E−12	7.8E−12	5.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.8E−14	1.8E−12	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.1E−15	3.6E−14	2.1E−14	1.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.7E−13	1.2E−11	1.0E−10	7.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.1E−13	6.6E−12	3.1E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.6E−10	6.8E−10	5.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.5E−12	7.4E−11	5.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.7E−14	1.1E−13	8.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	6.9E−15	4.5E−15	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.6E−16	4.3E−15	1.8E−15	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.2E−15	9.1E−14	4.0E−15	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.8E−15	6.8E−14	2.3E−11	1.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E−15	3.6E−14	1.9E−11	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.0E−09	7.4E−08	2.4E−09	9.4E−09	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		5.7E−03	1.4E−03	2.5E−08	2.8E−07	1.3E−03	4.3E−04
Sum Chem (BaP for PAHs):	5.0E−09	7.4E−08	2.9E−09	1.3E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		5.7E−03	1.4E−03	2.5E−08	2.8E−07	1.3E−03	4.3E−04
TOTAL ALL (TEF Approach):	1.5E−07	8.2E−08	2.8E−09	2.4E−08	8.6E−07	2.5E−07	1.9E−05	9.8E−08	0.0E+00	4.0E−06	5.7E−03	1.4E−03	6.6E−07	2.3E−05	1.3E−03	4.3E−04
TOTAL ALL (BaP Approach):	1.5E−07	8.2E−08	3.2E−09	2.8E−08	8.6E−07	2.5E−07	1.9E−05	9.8E−08	0.0E+00	4.0E−06	5.7E−03	1.4E−03	6.6E−07	2.3E−05	1.3E−03	4.3E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25d
ILCRs FOR OFF–PROPERTY CHILD
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.1E−14	5.5E−13	8.7E−13	7.1E−12	3.0E−08	1.1E−07	9.4E−07	8.8E−09	NA	4.7E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	6.0E−12	1.4E−12	1.1E−14	2.4E−14	NA	NA	NA	NA	NA	NA	3.2E−08	1.0E−08	4.7E−11	1.0E−10	NA	NA
Pu_{238}	2.2E−10	3.2E−11	1.1E−15	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.4E−11	5.4E−12	4.5E−16	2.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.6E−09	5.5E−09	2.8E−10	1.2E−08	NA	NA	NA	NA	NA	NA	1.9E−06	6.1E−07	1.3E−08	5.5E−07	1.5E−07	NA
Ru_{106}	3.0E−13	1.7E−13	1.5E−14	1.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.3E−14	2.0E−12	1.6E−13	1.9E−11	1.6E−06	3.0E−07	3.5E−05	5.5E−08	NA	ND	6.1E−08	2.8E−08	1.3E−09	1.5E−07	NA	NA
Tc_{99}	7.5E−14	3.4E−13	2.4E−13	6.6E−12	NA	NA	NA	NA	NA	NA	2.5E−07	7.4E−08	3.3E−08	9.3E−07	NA	NA
Th_{230}	1.0E−08	1.2E−10	1.4E−13	2.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.3E−09	9.4E−11	1.1E−13	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.6E−08	2.6E−10	2.7E−12	1.9E−10	7.9E−09	4.7E−10	3.3E−08	1.7E−08	NA	2.4E−10	1.3E−07	3.4E−08	2.2E−10	1.6E−08	NA	NA
$U_{235/236}$	1.3E−09	2.2E−11	2.3E−13	1.6E−11	NA	NA	NA	NA	NA	NA	5.8E−09	1.5E−09	1.0E−11	7.4E−10	NA	NA
U_{238+2d}	3.5E−08	5.0E−10	5.1E−12	3.6E−10	1.9E−08	1.1E−09	8.0E−08	4.2E−08	NA	4.0E−07	2.2E−07	5.7E−08	3.8E−10	2.8E−08	NA	NA
Rn_{222+4d}	2.2E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.8E−08	6.5E−09	2.9E−10	1.2E−08	1.6E−06	4.1E−07	3.6E−05	1.2E−07		5.1E−06	2.6E−06	8.1E−07	4.8E−08	1.7E−06	1.5E−07	
Chemicals																
arsenic	9.9E−10	4.1E−09	1.5E−09	1.0E−09	NA	NA	NA	NA	NA	NA	3.7E−06	1.4E−06	2.5E−07	1.8E−07	ND	7.8E−09
beryllium	4.1E−11	6.9E−10	1.5E−10	3.1E−12	NA	NA	NA	NA	NA	NA	1.3E−07	4.3E−08	3.3E−09	7.1E−11	ND	2.5E−08
cadmium	1.5E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.7E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.0E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.1E−18	5.1E−17	9.2E−21	6.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.3E−14	1.1E−15	1.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.8E−14	9.0E−17	6.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	1.6E−17	4.0E−17	3.9E−21	3.1E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.2E−17	4.8E−15	4.1E−20	4.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	3.4E−15	1.0E−17	8.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.8E−13	3.9E−18	3.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.1E−10	1.9E−07	6.1E−10	4.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.3E−09	1.4E−07	5.1E−11	3.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.2E−13	3.9E−13	2.2E−13	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	9.4E−13	3.0E−11	4.6E−11	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.2E−13	3.8E−12	6.1E−12	4.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	4.7E−14	1.5E−12	1.4E−11	1.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	8.0E−16	2.7E−14	1.6E−14	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.9E−13	9.1E−12	7.9E−11	5.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.7E−13	5.2E−12	2.4E−11	1.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.6E−10	4.2E−10	3.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.5E−12	7.2E−11	5.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.3E−14	8.3E−14	6.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.4E−15	2.2E−15	1.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.6E−16	4.1E−15	1.7E−15	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	2.0E−15	5.6E−14	2.5E−15	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.4E−15	8.2E−14	2.8E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.4E−15	3.4E−14	1.8E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	6.5E−09	3.4E−07	3.0E−09	1.1E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		3.8E−06	1.4E−06	2.6E−07	1.8E−07	0.0E+00	3.3E−08
Sum Chem (BaP for PAHs):	6.5E−09	3.4E−07	3.3E−09	1.4E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		3.8E−06	1.4E−06	2.6E−07	1.8E−07	0.0E+00	3.3E−08
TOTAL ALL (TEF Approach):	9.5E−08	3.4E−07	3.3E−09	2.3E−08	1.6E−06	4.1E−07	3.6E−05	1.2E−07	0.0E+00	5.1E−06	6.4E−06	2.3E−06	3.0E−07	1.9E−06	1.5E−07	3.3E−08
TOTAL ALL (BaP Approach):	9.5E−08	3.4E−07	3.6E−09	2.6E−08	1.6E−06	4.1E−07	3.6E−05	1.2E−07	0.0E+00	5.1E−06	6.4E−06	2.3E−06	3.0E−07	1.9E−06	1.5E−07	3.3E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25e
ILCRs FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.7E−14	1.8E−12	2.9E−12	2.4E−11	3.5E−08	1.3E−07	1.1E−06	1.0E−08	NA	5.4E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.6E−11	3.8E−12	3.1E−14	6.5E−14	NA	NA	NA	NA	NA	NA	1.4E−17	4.4E−18	2.1E−20	4.4E−20	NA	NA
Pu_{238}	5.3E−10	7.8E−11	2.6E−15	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.6E−11	1.5E−11	1.3E−15	5.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.2E−08	4.0E−08	2.0E−09	8.6E−08	NA	NA	NA	NA	NA	NA	1.4E−21	4.6E−22	9.7E−24	4.1E−22	1.2E−22	NA
Ru_{106}	5.0E−13	2.8E−13	2.4E−14	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.4E−13	8.1E−12	6.6E−13	7.7E−11	2.2E−06	4.3E−07	5.0E−05	7.9E−08	NA	ND	7.2E−18	3.2E−18	1.5E−19	1.8E−17	NA	NA
Tc_{99}	3.3E−13	1.5E−12	1.1E−12	2.9E−11	1.7E−07	5.8E−07	1.6E−05	9.8E−10	NA	3.4E−12	1.6E−11	4.8E−12	2.2E−12	6.1E−11	NA	NA
Th_{230}	6.0E−08	7.1E−10	8.1E−13	1.6E−11	9.3E−11	4.6E−12	8.9E−11	9.7E−09	NA	3.0E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	9.2E−09	3.8E−10	4.3E−13	8.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	5.0E−08	8.1E−10	8.4E−12	5.9E−10	2.0E−08	1.2E−09	8.5E−08	4.5E−08	NA	6.3E−10	5.6E−10	1.5E−10	9.9E−13	7.2E−11	NA	NA
$U_{235/236}$	3.8E−09	6.5E−11	6.7E−13	4.7E−11	2.1E−09	1.3E−10	8.9E−09	4.7E−09	NA	5.2E−07	2.6E−11	6.8E−12	4.5E−14	3.3E−12	NA	NA
U_{238+2d}	1.1E−07	1.5E−09	1.6E−11	1.1E−09	3.6E−08	2.1E−09	1.5E−07	8.0E−08	NA	7.6E−07	9.6E−10	2.5E−10	1.7E−12	1.2E−10	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.4E−07	4.4E−08	2.1E−09	8.8E−08	2.5E−06	1.1E−06	6.7E−05	2.3E−07		6.7E−06	1.6E−09	4.1E−10	4.9E−12	2.6E−10	1.2E−22	
Chemicals																
arsenic	1.5E−09	6.1E−09	2.2E−09	1.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.1E−10	1.8E−09	3.8E−10	7.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	3.0E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.2E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	2.2E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	7.0E−18	3.3E−16	5.8E−20	4.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.9E−14	4.7E−15	6.2E−14	3.4E−09	6.4E−10	8.4E−09	1.2E−09	5.1E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.3E−13	6.6E−16	4.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	9.8E−17	2.5E−16	2.5E−20	2.0E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.9E−16	4.5E−14	3.8E−19	4.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	7.6E−15	2.2E−17	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.1E−12	2.4E−17	1.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.6E−10	1.5E−07	4.8E−10	3.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.0E−09	1.1E−07	4.0E−11	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	7.3E−13	2.5E−12	1.4E−12	1.0E−11	3.1E−08	3.4E−08	2.5E−07	1.3E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	6.0E−12	1.9E−10	3.0E−10	2.2E−09	1.1E−06	4.3E−06	3.2E−05	8.8E−07	8.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.6E−13	2.1E−11	3.4E−11	2.5E−10	1.4E−07	5.5E−07	4.1E−06	1.1E−07	1.1E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	3.2E−13	1.0E−11	9.2E−11	6.9E−10	3.1E−08	1.1E−06	8.3E−06	6.2E−08	6.2E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	4.3E−15	1.4E−13	8.4E−14	6.3E−13	3.0E−09	3.2E−09	2.4E−08	1.3E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	2.0E−12	6.3E−11	5.5E−10	4.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	9.3E−13	2.9E−11	1.3E−10	1.0E−09	1.0E−07	1.6E−06	1.2E−05	1.5E−07	1.5E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.1E−09	2.8E−09	2.1E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	9.4E−12	4.6E−10	3.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	7.1E−14	4.4E−13	3.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.2E−14	8.0E−15	5.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.5E−16	9.2E−15	3.8E−15	2.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.0E−15	1.7E−13	7.4E−15	5.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	9.9E−15	2.4E−13	8.2E−11	6.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	9.0E−15	2.2E−13	1.1E−10	9.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.3E−08	2.7E−07	7.6E−09	3.9E−08	1.5E−06	7.6E−06	5.7E−05	1.2E−06	1.2E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	1.3E−08	2.7E−07	9.9E−09	5.6E−08	4.1E−06	3.7E−05	2.8E−04	3.9E−06	3.9E−06		0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	2.5E−07	3.2E−07	9.7E−09	1.3E−07	3.9E−06	8.8E−06	1.2E−04	1.4E−06	1.2E−06	6.7E−06	1.6E−09	4.1E−10	4.9E−12	2.6E−10	1.2E−22	0.0E+00
TOTAL ALL (BaP Approach):	2.5E−07	3.2E−07	1.2E−08	1.4E−07	6.6E−06	3.8E−05	3.4E−04	4.1E−06	3.9E−06	6.7E−06	1.6E−09	4.1E−10	4.9E−12	2.6E−10	1.2E−22	0.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–25f
ILCRs FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.7E−14	8.4E−13	1.3E−12	1.1E−11	3.5E−08	1.3E−07	1.1E−06	1.0E−08	NA	5.4E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.5E−12	2.0E−12	1.6E−14	3.4E−14	NA	NA	NA	NA	NA	NA	3.6E−08	1.1E−08	5.3E−11	1.1E−10	NA	NA
Pu_{238}	4.7E−10	6.8E−11	2.2E−15	1.1E−14	NA	NA	NA	NA	NA	NA	7.2E−25	1.9E−25	3.1E−30	1.5E−29	NA	NA
Pu_{239240}	6.1E−11	9.6E−12	8.0E−16	3.7E−15	NA	NA	NA	NA	NA	NA	1.5E−22	4.0E−23	7.0E−28	3.4E−27	NA	NA
Ra_{226+8d}	2.2E−09	7.5E−09	3.8E−10	1.6E−08	NA	NA	NA	NA	NA	NA	1.2E−08	3.7E−09	7.7E−11	3.3E−09	9.2E−10	NA
Ru_{106}	2.5E−13	1.4E−13	1.2E−14	8.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.7E−13	4.1E−12	3.3E−13	3.9E−11	2.2E−06	4.3E−07	5.0E−05	7.9E−08	NA	ND	1.1E−09	4.8E−10	2.2E−11	2.6E−09	NA	NA
Tc_{99}	2.6E−13	1.2E−12	8.4E−13	2.3E−11	1.7E−07	5.8E−07	1.6E−05	9.8E−10	NA	3.4E−12	1.9E−06	5.5E−07	2.5E−07	7.0E−06	NA	NA
Th_{230}	3.3E−08	4.0E−10	4.5E−13	8.7E−12	9.3E−11	4.6E−12	8.9E−11	9.7E−09	NA	3.0E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.8E−09	2.4E−10	2.7E−13	5.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.9E−08	6.3E−10	6.5E−12	4.6E−10	2.0E−08	1.2E−09	8.5E−08	4.5E−08	NA	6.3E−10	1.0E−05	2.7E−06	1.8E−08	1.3E−06	NA	NA
$U_{235/236}$	2.8E−09	4.8E−11	4.9E−13	3.5E−11	2.1E−09	1.3E−10	8.9E−09	4.7E−09	NA	5.2E−07	4.6E−07	1.2E−07	8.0E−10	5.8E−08	NA	NA
U_{238+2d}	7.8E−08	1.1E−09	1.1E−11	8.0E−10	3.6E−08	2.1E−09	1.5E−07	8.0E−08	NA	7.6E−07	1.7E−05	4.5E−06	3.0E−08	2.2E−06	NA	NA
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.6E−07	1.0E−08	4.0E−10	1.7E−08	2.5E−06	1.1E−06	6.7E−05	2.3E−07		6.7E−06	3.0E−05	7.9E−06	3.0E−07	1.1E−05	9.2E−10	
Chemicals																
arsenic	1.2E−09	4.8E−09	1.7E−09	1.2E−09	NA	NA	NA	NA	NA	NA	1.0E−18	3.8E−19	6.8E−20	4.8E−20	ND	2.1E−21
beryllium	6.9E−11	1.2E−09	2.4E−10	5.2E−12	NA	NA	NA	NA	NA	NA	4.4E−22	1.5E−22	1.2E−23	2.5E−25	ND	8.9E−23
cadmium	1.9E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	6.0E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.3E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.5E−18	6.9E−17	1.2E−20	9.3E−20	NA	NA	NA	NA	NA	NA	7.4E−13	3.9E−13	3.9E−17	3.0E−16	5.6E−12	9.8E−14
bis(2−ethylhexyl)phthalate	ND	1.9E−14	1.5E−15	2.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.6E−14	2.3E−16	1.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E−17	6.1E−17	6.1E−21	4.8E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9E−05	4.1E−05	2.6E−09	2.0E−08	3.4E−04	3.7E−06
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E−03	3.2E−04	3.9E−09	5.2E−08	ND	1.1E−04
methylene chloride	8.2E−17	9.3E−15	8.0E−20	9.5E−19	NA	NA	NA	NA	NA	NA	5.2E−21	1.3E−21	3.3E−27	4.5E−26	8.3E−21	1.4E−22
n−nitrosodiphenylamine	ND	3.0E−15	8.9E−18	7.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	2.3E−13	5.0E−18	4.0E−17	NA	NA	NA	NA	NA	NA	4.2E−10	1.5E−10	1.8E−15	1.5E−14	ND	1.2E−11
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.6E−11	4.2E−08	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.8E−10	3.1E−08	1.1E−11	8.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.1E−13	7.1E−13	4.0E−13	3.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.6E−12	5.2E−11	8.1E−11	6.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E−13	6.4E−12	1.0E−11	7.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.9E−14	2.5E−12	2.3E−11	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	1.4E−15	4.6E−14	2.7E−14	2.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.0E−13	1.6E−11	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.9E−13	8.9E−12	4.2E−11	3.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.2E−10	8.3E−10	6.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.0E−12	9.6E−11	7.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.1E−14	1.3E−13	9.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	7.9E−15	5.2E−15	3.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.9E−16	4.9E−15	2.0E−15	1.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.7E−15	1.0E−13	4.5E−15	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	3.1E−15	7.6E−14	2.6E−11	2.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.9E−15	4.6E−14	2.4E−11	2.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	7.9E−09	7.9E−08	3.4E−09	1.2E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.5E−03	3.6E−04	6.5E−09	7.2E−08	3.4E−04	1.1E−04
Sum Chem (BaP for PAHs):	7.9E−09	7.9E−08	4.0E−09	1.6E−08	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00		1.5E−03	3.6E−04	6.5E−09	7.2E−08	3.4E−04	1.1E−04
TOTAL ALL (TEF Approach):	1.7E−07	8.9E−08	3.8E−09	2.9E−08	2.5E−06	1.1E−06	6.7E−05	2.3E−07	0.0E+00	6.7E−06	1.5E−03	3.7E−04	3.1E−07	1.1E−05	3.4E−04	1.1E−04
TOTAL ALL (BaP Approach):	1.7E−07	8.9E−08	4.4E−09	3.3E−08	2.5E−06	1.1E−06	6.7E−05	2.3E−07	0.0E+00	6.7E−06	1.5E−03	3.7E−04	3.1E−07	1.1E−05	3.4E−04	1.1E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII-25g
ILCRs FOR OFF-PROPERTY CHILD
AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	2.9E-14	1.4E-12	2.3E-12	1.9E-11	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E-11	2.5E-12	2.0E-14	4.3E-14	2.1E-13	6.8E-14	3.2E-16	6.8E-16	NA	NA
Pu_{238}	4.3E-10	6.2E-11	2.0E-15	9.6E-15	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.4E-11	1.2E-11	9.8E-16	4.6E-15	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	6.9E-09	2.3E-08	1.2E-09	5.0E-08	1.4E-21	4.6E-22	9.6E-24	4.1E-22	1.1E-22	NA
Ru_{106}	3.1E-13	1.7E-13	1.5E-14	1.1E-16	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.4E-13	8.1E-12	6.6E-13	7.7E-11	2.4E-13	1.1E-13	5.1E-15	6.0E-13	NA	NA
Tc_{99}	5.9E-13	2.7E-12	1.9E-12	5.2E-11	5.1E-09	1.5E-09	6.8E-10	1.9E-08	NA	NA
Th_{230}	9.1E-08	1.1E-09	1.2E-12	2.4E-11	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.0E-08	4.2E-10	4.8E-13	9.4E-12	NA	NA	NA	NA	NA	NA
U_{234}	5.2E-08	8.5E-10	8.8E-12	6.2E-10	1.5E-08	3.9E-09	2.6E-11	1.9E-09	NA	NA
$U_{235/236}$	3.6E-09	6.0E-11	6.2E-13	4.4E-11	6.7E-10	1.8E-10	1.2E-12	8.5E-11	NA	NA
U_{238+2d}	9.8E-08	1.4E-09	1.4E-11	1.0E-09	2.5E-08	6.6E-09	4.4E-11	3.2E-09	NA	NA
Rn_{222+4d}	5.5E-08	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.2E-07	2.7E-08	1.2E-09	5.2E-08	4.6E-08	1.2E-08	7.5E-10	2.4E-08	1.1E-22	
Chemicals										
arsenic	1.2E-09	4.8E-09	1.7E-09	1.2E-09	9.3E-27	3.5E-27	6.3E-28	4.5E-28	ND	2.0E-29
beryllium	7.4E-11	1.2E-09	2.6E-10	5.5E-12	NA	NA	NA	NA	NA	NA
cadmium	2.2E-10	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	6.7E-09	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	1.5E-10	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	3.2E-18	1.5E-16	2.7E-20	2.0E-19	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.1E-14	2.5E-15	3.3E-14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.5E-14	4.7E-16	3.5E-15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E-17	1.2E-16	1.2E-20	9.9E-20	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	9.6E-06	4.4E-06	2.8E-10	2.1E-09	3.6E-05	4.0E-07
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E-16	2.0E-14	1.7E-19	2.0E-18	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	4.5E-15	1.3E-17	1.1E-16	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	5.0E-13	1.1E-17	8.7E-17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.1E-11	8.3E-08	2.7E-10	2.0E-09	NA	NA	NA	NA	NA	NA
trichloroethene	5.6E-10	6.2E-08	2.2E-11	1.7E-10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.8E-13	1.3E-12	7.3E-13	5.4E-12	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E-12	9.7E-11	1.5E-10	1.1E-09	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.7E-13	1.2E-11	1.9E-11	1.4E-10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.6E-13	5.0E-12	4.6E-11	3.4E-10	NA	NA	NA	NA	NA	NA
chrysene	2.4E-15	7.9E-14	4.6E-14	3.4E-13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E-12	3.2E-11	2.7E-10	2.0E-09	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	5.3E-13	1.6E-11	7.7E-11	5.7E-10	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	5.3E-10	1.4E-09	1.0E-08	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	4.3E-12	2.1E-10	1.6E-09	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	3.5E-14	2.2E-13	1.6E-12	NA	NA	NA	NA	NA	NA
4,4-dde	ND	7.9E-15	5.2E-15	3.9E-14	NA	NA	NA	NA	NA	NA
chlordane	2.2E-16	5.8E-15	2.4E-15	1.8E-14	NA	NA	NA	NA	NA	NA
dieldrin	3.9E-15	1.1E-13	4.8E-15	3.6E-14	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	5.1E-15	1.2E-13	4.2E-11	3.5E-10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.2E-15	1.0E-13	5.3E-11	4.4E-10	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	8.9E-09	1.5E-07	4.5E-09	2.0E-08	9.6E-06	4.4E-06	2.8E-10	2.1E-09	3.6E-05	4.0E-07
Sum Chem (BaP for PAHs):	8.9E-09	1.5E-07	5.7E-09	2.9E-08	9.6E-06	4.4E-06	2.8E-10	2.1E-09	3.6E-05	4.0E-07
TOTAL ALL (TEF Approach):	3.3E-07	1.8E-07	5.7E-09	7.2E-08	9.7E-06	4.4E-06	1.0E-09	2.6E-08	3.6E-05	4.0E-07
TOTAL ALL (BaP Approach):	3.3E-07	1.8E-07	6.9E-09	8.0E-08	9.7E-06	4.4E-06	1.0E-09	2.6E-08	3.6E-05	4.0E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

DRAFT

TABLE A.VII–25h
ILCRs FOR OFF–PROPERTY CHILD
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	2.9E−14	1.4E−12	2.2E−12	1.8E−11	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E−11	3.2E−12	2.6E−14	5.6E−14	6.5E−09	2.1E−09	9.6E−12	2.1E−11	NA	NA
Pu_{238}	5.6E−10	8.2E−11	2.7E−15	1.3E−14	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.8E−11	1.4E−11	1.2E−15	5.4E−15	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	4.0E−09	1.3E−08	6.8E−10	2.9E−08	8.5E−08	2.7E−08	5.7E−10	2.4E−08	6.7E−09	NA
Ru_{106}	3.6E−13	2.0E−13	1.8E−14	1.3E−16	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.5E−13	8.4E−12	6.8E−13	8.0E−11	4.1E−11	1.9E−11	8.6E−13	1.0E−10	NA	NA
Tc_{99}	7.5E−13	3.4E−12	2.4E−12	6.6E−11	2.0E−07	5.8E−08	2.6E−08	7.4E−07	NA	NA
Th_{230}	7.3E−08	8.6E−10	9.8E−13	1.9E−11	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.1E−08	4.5E−10	5.1E−13	1.0E−11	NA	NA	NA	NA	NA	NA
U_{234}	6.6E−08	1.1E−09	1.1E−11	7.7E−10	2.3E−06	6.2E−07	4.1E−09	3.0E−07	NA	NA
$U_{235/236}$	4.5E−09	7.6E−11	7.9E−13	5.5E−11	1.1E−07	2.8E−08	1.9E−10	1.4E−08	NA	NA
U_{238+2d}	1.2E−07	1.7E−09	1.8E−11	1.2E−09	4.0E−06	1.1E−06	7.0E−09	5.1E−07	NA	NA
Rn_{222+4d}	3.7E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.2E−07	1.8E−08	7.1E−10	3.1E−08	6.7E−06	1.8E−06	3.8E−08	1.6E−06	6.7E−09	
Chemicals										
arsenic	1.3E−09	5.5E−09	2.0E−09	1.4E−09	4.9E−20	1.8E−20	3.3E−21	2.4E−21	ND	1.0E−22
beryllium	8.3E−11	1.4E−09	2.9E−10	6.2E−12	NA	NA	NA	NA	NA	NA
cadmium	2.4E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	7.4E−09	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	1.7E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	2.2E−18	1.0E−16	1.9E−20	1.4E−19	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.5E−14	2.0E−15	2.6E−14	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.3E−14	4.6E−16	3.4E−15	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.8E−17	9.7E−17	9.7E−21	7.7E−20	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−16	1.5E−14	1.3E−19	1.5E−18	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	4.7E−15	1.4E−17	1.1E−16	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	3.6E−13	7.8E−18	6.3E−17	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.7E−11	6.1E−08	2.0E−10	1.5E−09	NA	NA	NA	NA	NA	NA
trichloroethene	3.9E−10	4.4E−08	1.6E−11	1.2E−10	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.3E−13	1.1E−12	6.3E−13	4.7E−12	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E−12	8.1E−11	1.3E−10	9.4E−10	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.3E−13	1.0E−11	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−13	4.0E−12	3.7E−11	2.7E−10	NA	NA	NA	NA	NA	NA
chrysene	2.1E−15	7.1E−14	4.1E−14	3.1E−13	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.4E−13	2.6E−11	2.3E−10	1.7E−09	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.7E−13	1.4E−11	6.7E−11	5.0E−10	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	4.1E−10	1.1E−09	7.9E−09	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.0E−12	1.5E−10	1.1E−09	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.9E−14	1.8E−13	1.4E−12	NA	NA	NA	NA	NA	NA
4,4−dde	ND	9.5E−15	6.2E−15	4.6E−14	NA	NA	NA	NA	NA	NA
chlordane	2.6E−16	6.8E−15	2.8E−15	2.1E−14	NA	NA	NA	NA	NA	NA
dieldrin	4.6E−15	1.3E−13	5.6E−15	4.2E−14	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.8E−15	1.2E−13	4.0E−11	3.4E−10	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.0E−15	7.2E−14	3.7E−11	3.1E−10	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	9.6E−09	1.1E−07	4.2E−09	1.6E−08	4.9E−20	1.8E−20	3.3E−21	2.4E−21	0.0E+00	1.0E−22
Sum Chem (BaP for PAHs):	9.6E−09	1.1E−07	5.2E−09	2.3E−08	4.9E−20	1.8E−20	3.3E−21	2.4E−21	0.0E+00	1.0E−22
TOTAL ALL (TEF Approach):	3.3E−07	1.3E−07	4.9E−09	4.7E−08	6.7E−06	1.8E−06	3.8E−08	1.6E−06	6.7E−09	1.0E−22
TOTAL ALL (BaP Approach):	3.3E−07	1.3E−07	5.9E−09	5.4E−08	6.7E−06	1.8E−06	3.8E−08	1.6E−06	6.7E−09	1.0E−22

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-25i
ILCRs FOR OFF-PROPERTY CHILD
NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides										
Cs_{137+1d}	5.6E-16	2.7E-14	4.4E-14	3.6E-13	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.6E-13	5.9E-14	4.8E-16	1.0E-15	3.2E-09	1.0E-09	4.6E-12	1.0E-11	NA	NA
Pu_{238}	9.8E-12	1.4E-12	4.7E-17	2.2E-16	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.5E-12	2.4E-13	2.0E-17	9.3E-17	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.1E-10	3.6E-10	1.8E-11	7.6E-10	4.4E-15	1.4E-15	2.9E-17	1.3E-15	3.5E-16	NA
Ru_{106}	7.3E-15	4.0E-15	3.6E-16	2.6E-18	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.7E-15	1.4E-13	1.1E-14	1.3E-12	8.5E-13	3.8E-13	1.8E-14	2.1E-12	NA	NA
Tc_{99}	9.2E-15	4.2E-14	3.0E-14	8.2E-13	2.4E-07	7.1E-08	3.2E-08	9.0E-07	NA	NA
Th_{230}	1.3E-09	1.5E-11	1.7E-14	3.3E-13	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.8E-10	7.3E-12	8.2E-15	1.6E-13	NA	NA	NA	NA	NA	NA
U_{234}	9.8E-10	1.6E-11	1.6E-13	1.2E-11	1.4E-06	3.8E-07	2.5E-09	1.8E-07	NA	NA
$U_{235/236}$	6.8E-11	1.2E-12	1.2E-14	8.4E-13	6.5E-08	1.7E-08	1.1E-10	8.3E-09	NA	NA
U_{238+2d}	2.0E-09	2.8E-11	2.9E-13	2.0E-11	2.4E-06	6.4E-07	4.3E-09	3.1E-07	NA	NA
Rn_{222+4d}	2.3E-08	ND	ND	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.8E-08	4.3E-10	1.9E-11	8.0E-10	4.2E-06	1.1E-06	3.9E-08	1.4E-06	3.5E-16	
Chemicals										
arsenic	2.3E-11	9.6E-11	3.4E-11	2.4E-11	NA	NA	NA	NA	NA	NA
beryllium	1.4E-12	2.3E-11	4.9E-12	1.0E-13	NA	NA	NA	NA	NA	NA
cadmium	4.1E-12	ND	ND	ND	NA	NA	NA	NA	NA	NA
chromium vi	1.2E-10	ND	ND	ND	ND	ND	ND	ND	ND	ND
nickel	2.9E-12	ND	ND	ND	NA	NA	NA	NA	NA	NA
benzene	5.9E-20	2.8E-18	4.9E-22	3.7E-21	NA	NA	NA	NA	NA	NA
bis(2-ethylheryl)phthalate	ND	5.3E-16	4.2E-17	5.6E-16	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.5E-15	7.6E-18	5.6E-17	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	8.4E-19	2.1E-18	2.1E-22	1.7E-21	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E-18	3.5E-16	3.0E-21	3.5E-20	NA	NA	NA	NA	NA	NA
n-nitrosodiphenylamine	ND	9.0E-17	2.6E-19	2.1E-18	NA	NA	NA	NA	NA	NA
n-nitrosodipropylamine	ND	9.4E-15	2.0E-19	1.6E-18	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.1E-12	1.9E-09	6.1E-12	4.6E-11	NA	NA	NA	NA	NA	NA
trichloroethene	1.2E-11	1.4E-09	4.9E-13	3.7E-12	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	6.8E-15	2.3E-14	1.3E-14	9.7E-14	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	5.3E-14	1.7E-12	2.7E-12	2.0E-11	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	6.6E-15	2.1E-13	3.4E-13	2.5E-12	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	2.8E-15	8.9E-14	8.2E-13	6.1E-12	NA	NA	NA	NA	NA	NA
chrysene	4.3E-17	1.4E-15	8.4E-16	6.3E-15	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.8E-14	5.6E-13	4.8E-12	3.6E-11	NA	NA	NA	NA	NA	NA
indeno(1,2,3-cd)pyrene	9.2E-15	2.8E-13	1.3E-12	9.9E-12	NA	NA	NA	NA	NA	NA
aroclor-1254	ND	9.0E-12	2.3E-11	1.7E-10	NA	NA	NA	NA	NA	NA
aroclor-1260	ND	8.0E-14	3.9E-12	2.9E-11	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	6.5E-16	4.1E-15	3.0E-14	NA	NA	NA	NA	NA	NA
4,4-dde	ND	1.5E-16	1.0E-16	7.5E-16	NA	NA	NA	NA	NA	NA
chlordane	4.5E-18	1.2E-16	4.9E-17	3.7E-16	NA	NA	NA	NA	NA	NA
dieldrin	7.6E-17	2.1E-15	9.3E-17	7.0E-16	NA	NA	NA	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	9.9E-17	2.4E-15	8.2E-13	6.9E-12	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	7.6E-17	1.9E-15	9.6E-13	8.0E-12	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E-10	3.4E-09	8.5E-11	3.7E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
Sum Chem (BaP for PAHs):	1.7E-10	3.4E-09	1.1E-10	5.2E-10	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
TOTAL ALL (TEF Approach):	2.8E-08	3.8E-09	1.0E-10	1.2E-09	4.2E-06	1.1E-06	3.9E-08	1.4E-06	3.5E-16	0.0E+00
TOTAL ALL (BaP Approach):	2.8E-08	3.9E-09	1.2E-10	1.3E-09	4.2E-06	1.1E-06	3.9E-08	1.4E-06	3.5E-16	0.0E+00

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26a
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
EASTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.2E−07	1.3E−12	1.0E−11	7.4E−01	2.7E−06	2.0E−05	2.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	6.2E−04	2.0E−04	4.7E−04	3.2E−01	1.4E−01	3.3E−01	9.3E−02	6.2E−02	NA	2.5E−01	2.5E−01	4.1E−02	9.6E−02	ND	3.3E−03
arsenic	ND	2.3E−04	8.2E−05	5.7E−05	NA	NA	NA	NA	NA	NA	3.6E−02	1.4E−02	2.4E−03	1.7E−03	ND	7.5E−05
barium	1.7E−04	3.2E−05	2.4E−06	1.3E−04	7.5E−02	7.7E−03	4.2E−01	4.4E−02	4.8E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.3E−06	2.8E−07	6.0E−09	6.1E−04	5.2E−04	1.1E−05	3.6E−03	3.6E−02	NA	1.8E−10	6.2E−11	4.7E−12	1.0E−13	ND	3.6E−11
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.8E−04	4.8E−05	2.0E−03	4.1E−01	5.4E−02	2.3E+00	2.4E−02	4.9E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.4E−05	2.6E−05	1.6E−04	3.1E−02	4.2E−02	2.7E−01	6.0E−02	1.3E−02	NA	2.1E−02	1.1E−02	2.5E−03	1.6E−02	ND	1.8E−04
cobalt	6.2E−03	1.5E−06	4.6E−06	1.1E−05	3.6E−03	2.0E−02	4.7E−02	4.6E−03	1.0E−03	NA	NA	NA	NA	NA	NA	NA
copper	ND	7.4E−05	7.4E−05	2.6E−04	1.2E−01	1.2E−01	4.3E−01	4.1E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.0E−05	1.2E−05	2.2E−04	7.6E−01	4.5E−01	8.4E+00	1.2E−02	2.4E−02	NA	3.5E+00	1.8E+00	4.1E−01	7.8E+00	ND	1.4E−01
manganese	1.3E−02	1.3E−04	1.4E−05	2.8E−04	2.3E+00	3.0E−01	6.2E+00	4.0E−01	1.3E+00	NA	2.0E−01	2.4E−01	1.2E−02	2.6E−01	ND	1.3E−02
mercury	8.2E−07	1.0E−05	3.6E−04	1.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.3E−05	2.6E−05	1.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	4.7E−05	2.0E−05	7.9E−05	1.0E−01	4.6E−02	1.8E−01	1.5E−02	7.6E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.2E−06	3.9E−06	2.4E−05	4.0E−03	5.4E−03	3.3E−02	1.4E−03	1.8E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	5.3E−05	3.6E−05	5.7E−03	5.2E−02	4.1E−02	6.4E+00	4.6E−03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.1E−05	1.6E−04	1.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	2.9E−03	3.0E−05	2.1E−03	1.3E−01	7.8E−03	5.5E−01	2.9E−01	5.8E−01	NA	2.7E+01	7.1E+00	4.7E−02	3.4E+00	ND	1.1E+00
vanadium	ND	2.6E−05	8.9E−06	1.7E−06	2.4E−02	2.0E−02	3.7E−03	7.1E−02	1.4E−02	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.4E−04	3.6E−03	8.4E−03	1.9E+00	2.0E+01	4.7E+01	1.8E−02	7.4E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.5E−09	1.2E−10	1.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E−11	2.4E−15	1.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.3E−04	3.9E−05	2.9E−04	3.8E−05	2.7E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−12	4.3E−10	3.7E−15	4.4E−14	8.4E−04	1.0E−08	1.2E−07	1.3E−06	3.8E−06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.1E−04	6.3E−05	4.7E−04	4.7E−05	3.3E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.4E−03	4.6E−06	3.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.9E−09	1.8E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.6E−09	1.6E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.9E−02	6.3E−03	4.7E−03	2.0E−02	6.9E+00	2.1E+01	7.3E+01	1.0E+00	2.1E+00		3.1E+01	9.4E+00	5.2E−01	1.2E+01	0.0E+00	1.2E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26b
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
NORTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	9.4E−08	3.0E−13	2.2E−12	7.4E−01	2.7E−06	2.0E−05	2.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	3.2E−04	1.0E−04	2.5E−04	NA	NA	NA	NA	NA	NA	1.2E−05	1.2E−05	2.0E−06	4.8E−06	ND	1.6E−07
arsenic	ND	9.1E−05	3.3E−05	2.3E−05	NA	NA	NA	NA	NA	NA	2.9E−02	1.1E−02	2.0E−03	1.4E−03	ND	6.1E−05
barium	6.7E−05	1.2E−05	9.3E−07	5.1E−05	4.1E−02	4.2E−03	2.3E−01	2.4E−02	2.6E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	5.0E−07	1.1E−07	2.2E−09	3.2E−04	2.7E−04	5.8E−06	1.9E−03	1.9E−02	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.0E−04	2.5E−05	1.1E−03	3.7E−01	4.9E−02	2.1E+00	2.2E−02	4.3E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.4E−05	1.0E−05	6.6E−05	2.2E−02	3.1E−02	2.0E−01	4.4E−02	9.8E−03	NA	7.0E−07	3.6E−07	8.5E−08	5.5E−07	ND	6.2E−09
cobalt	2.8E−03	6.8E−07	2.1E−06	4.9E−06	2.8E−03	1.5E−02	3.6E−02	3.5E−03	7.8E−04	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.7E−05	1.7E−05	6.0E−05	2.0E−01	2.1E−01	7.5E−01	7.2E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.1E−05	4.2E−06	7.8E−05	1.3E+00	7.8E−01	1.5E+01	2.1E−02	4.3E−02	NA	1.1E+00	5.6E−01	1.3E−01	2.4E+00	ND	4.3E−02
manganese	4.9E−03	5.0E−05	5.1E−06	1.1E−04	NA	NA	NA	NA	NA	NA	3.7E−04	4.4E−04	2.3E−05	4.7E−04	ND	2.5E−05
mercury	2.4E−07	2.9E−06	1.0E−04	4.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	8.5E−06	9.9E−06	5.8E−05	2.0E−01	3.4E−01	2.0E+00	3.0E−02	7.9E−03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	2.2E−05	9.5E−06	3.7E−05	9.4E−02	4.2E−02	1.6E−01	1.4E−02	6.9E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.7E−06	2.0E−06	1.3E−05	2.3E−03	3.1E−03	1.9E−02	8.2E−04	1.0E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.2E−05	1.5E−05	2.4E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.2E−05	9.6E−05	1.1E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	7.3E−04	7.5E−06	5.3E−04	2.5E−02	1.5E−03	1.0E−01	5.5E−02	1.1E−01	NA	8.0E−04	2.1E−04	1.4E−06	1.0E−04	ND	3.2E−05
vanadium	ND	1.0E−05	3.5E−06	6.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.0E−04	3.2E−03	7.5E−03	3.5E−01	3.8E+00	8.8E+00	3.4E−03	1.4E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.2E−09	9.9E−11	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E−11	2.4E−15	1.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E−13	3.3E−10	2.8E−15	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.2E−02	3.9E−05	2.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.7E−09	1.7E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.7E−09	7.7E−11	5.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.8E−03	1.4E−02	3.7E−03	1.3E−02	3.4E+00	5.2E+00	2.9E+01	2.3E−01	2.4E−01		1.1E+00	5.7E−01	1.3E−01	2.4E+00	0.0E+00	4.3E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26c
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
SOUTHERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	9.5E−08	3.0E−13	2.3E−12	NA	NA	NA	NA	NA	NA	3.1E+00	2.0E+00	3.7E−06	2.8E−05	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.9E−04	6.1E−05	1.4E−04	NA	NA	NA	NA	NA	NA	1.0E−02	1.0E−02	1.7E−03	3.9E−03	ND	1.4E−04
arsenic	ND	7.0E−05	2.5E−05	1.8E−05	NA	NA	NA	NA	NA	NA	7.8E−05	2.9E−05	5.3E−06	3.8E−06	ND	1.6E−07
barium	5.4E−05	9.9E−06	7.4E−07	4.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	4.2E−07	8.9E−08	1.9E−09	NA	NA	NA	NA	NA	NA	2.9E−08	9.9E−09	7.6E−10	1.6E−11	ND	5.8E−09
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.1E−04	1.4E−05	6.0E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.5E−06	7.2E−06	4.6E−05	NA	NA	NA	NA	NA	NA	2.9E−02	1.5E−02	3.6E−03	2.3E−02	ND	2.6E−04
cobalt	1.9E−03	4.6E−07	1.4E−06	3.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.6E−05	1.6E−05	5.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	8.1E−06	3.2E−06	6.0E−05	NA	NA	NA	NA	NA	NA	1.5E+00	7.8E−01	1.8E−01	3.4E+00	ND	6.0E−02
manganese	3.9E−03	4.0E−05	4.1E−06	8.4E−05	NA	NA	NA	NA	NA	NA	2.0E−02	2.4E−02	1.3E−03	2.6E−02	ND	1.3E−03
mercury	2.5E−07	3.0E−06	1.1E−04	4.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.7E−06	6.6E−06	3.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.4E−05	6.2E−06	2.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.2E−06	1.5E−06	9.2E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.4E−05	9.7E−06	1.5E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	6.1E−06	4.7E−05	5.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	9.0E−04	9.3E−06	6.5E−04	2.3E−02	1.4E−03	9.7E−02	5.1E−02	1.0E−01	NA	3.8E+01	9.9E+00	6.6E−02	4.8E+00	ND	1.5E+00
vanadium	ND	7.4E−06	2.6E−06	4.8E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.1E−04	1.1E−03	2.6E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	6.3E−10	5.0E−11	6.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.8E−01	7.8E−02	9.8E−07	7.4E−06	1.3E+00	4.0E−03
chloroform	ND	8.9E−12	8.8E−16	7.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	1.6E−04	ND
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.5E+00	6.8E−01	4.4E−05	3.3E−04	ND	6.2E−02
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1E+00	7.1E−01	8.6E−06	1.2E−04	ND	2.4E−01
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.9E−13	1.7E−10	1.4E−15	1.7E−14	NA	NA	NA	NA	NA	NA	7.5E−11	1.9E−11	4.8E−17	6.4E−16	4.0E−11	2.0E−12
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.6E−03	6.0E−03	1.2E−07	9.2E−07	ND	5.0E−04
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	8.9E−04	2.9E−06	2.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−09	7.4E−09	5.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.3E−09	5.8E−11	4.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	5.9E−03	2.4E−03	1.5E−03	6.0E−03	2.3E−02	1.4E−03	9.7E−02	5.1E−02	1.0E−01		4.7E+01	1.4E+01	2.5E−01	8.2E+00	1.3E+00	1.9E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26d
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
WESTERN FENCELINE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	5.7E−08	1.8E−13	1.3E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.8E−04	9.2E−05	2.2E−04	NA	NA	NA	NA	NA	NA	4.1E−02	4.0E−02	6.7E−03	1.6E−02	ND	5.4E−04
arsenic	ND	9.1E−05	3.3E−05	2.3E−05	NA	NA	NA	NA	NA	NA	8.2E−02	3.1E−02	5.6E−03	4.0E−03	ND	1.7E−04
barium	4.4E−05	8.2E−06	6.1E−07	3.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.8E−07	8.0E−08	1.7E−09	NA	NA	NA	NA	NA	NA	6.9E−05	2.4E−05	1.8E−06	3.8E−08	ND	1.4E−05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.4E−04	1.8E−05	7.5E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.5E−06	7.2E−06	4.6E−05	NA	NA	NA	NA	NA	NA	4.3E−03	2.2E−03	5.3E−04	3.4E−03	ND	3.8E−05
cobalt	1.9E−03	4.6E−07	1.4E−06	3.3E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.1E−05	1.1E−05	4.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	7.4E−06	2.9E−06	5.5E−05	NA	NA	NA	NA	NA	NA	2.7E−01	1.4E−01	3.2E−02	6.0E−01	ND	1.1E−02
manganese	4.0E−03	4.0E−05	4.2E−06	8.5E−05	NA	NA	NA	NA	NA	NA	1.3E−01	1.5E−01	8.1E−03	1.7E−01	ND	8.7E−03
mercury	1.6E−07	2.0E−06	7.2E−05	3.0E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.0E−06	5.8E−06	3.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.7E−05	7.2E−06	2.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.1E−06	1.3E−06	8.4E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.7E−05	1.2E−05	1.8E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	7.6E−06	5.9E−05	6.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	5.2E−04	5.4E−06	3.8E−04	2.1E−02	1.3E−03	8.8E−02	4.7E−02	9.4E−02	NA	2.4E−01	6.2E−02	4.1E−04	3.0E−02	ND	9.4E−03
vanadium	ND	7.0E−06	2.4E−06	4.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.1E−04	1.1E−03	2.6E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.6E−10	4.5E−11	6.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	7.6E−12	7.5E−16	6.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.6E−13	1.2E−10	1.0E−15	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.2E−03	1.4E−05	1.0E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	9.1E−10	5.7E−09	4.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	8.2E−10	3.6E−11	2.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	5.9E−03	5.5E−03	1.5E−03	6.3E−03	2.1E−02	1.3E−03	8.8E−02	4.7E−02	9.4E−02		7.6E−01	4.3E−01	5.3E−02	8.2E−01	0.0E+00	3.0E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26e
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
NORTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.8E−07	5.9E−13	4.3E−12	7.6E−01	2.7E−06	2.0E−05	2.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	3.6E−04	1.2E−04	2.8E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
arsenic	ND	1.4E−04	4.9E−05	3.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
barium	1.2E−04	2.2E−05	1.7E−06	9.1E−05	3.7E−02	3.8E−03	2.1E−01	2.2E−02	2.4E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	9.6E−07	2.0E−07	4.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.8E−04	3.5E−05	1.5E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.4E−05	1.8E−05	1.1E−04	NA	NA	NA	NA	NA	NA	3.0E−14	1.6E−14	3.7E−15	2.4E−14	ND	2.7E−16
cobalt	4.3E−03	1.0E−06	3.2E−06	7.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.3E−05	4.3E−05	1.5E−04	1.6E−01	1.7E−01	6.1E−01	5.8E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.6E−05	6.4E−06	1.2E−04	2.5E−01	1.5E−01	2.8E+00	4.0E−03	8.1E−03	NA	4.1E−15	2.1E−15	4.8E−16	9.1E−15	ND	1.6E−16
manganese	8.1E−03	8.1E−05	8.4E−06	1.7E−04	7.8E−01	1.0E−01	2.1E+00	1.4E−01	4.6E−01	NA	1.7E−19	2.0E−19	1.1E−20	2.2E−19	ND	1.2E−20
mercury	5.4E−07	6.6E−06	2.4E−04	1.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.6E−05	1.9E−05	1.1E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.6E−05	1.5E−05	6.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.4E−06	2.9E−06	1.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.3E−05	2.3E−05	3.6E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.9E−05	1.4E−04	1.7E−04	2.7E−03	2.4E−01	2.8E−01	5.8E−02	5.8E−03	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.5E−03	1.5E−05	1.1E−03	3.9E−02	2.3E−03	1.6E−01	8.6E−02	1.7E−01	NA	1.0E−03	2.8E−04	1.8E−06	1.3E−04	ND	4.2E−05
vanadium	ND	1.7E−05	5.9E−06	1.1E−06	1.7E−02	1.4E−02	2.6E−03	4.9E−02	9.8E−03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	4.7E−04	5.0E−03	1.2E−02	5.0E−01	5.4E+00	1.3E+01	4.9E−03	2.0E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.5E−09	2.0E−10	2.6E−09	1.4E−04	2.7E−05	3.5E−04	4.8E−05	2.1E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.8E−11	4.7E−15	3.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	7.5E−04	1.3E−04	9.4E−04	1.2E−04	8.7E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.4E−12	1.1E−09	9.8E−15	1.2E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.3E−04	1.6E−04	1.2E−03	1.2E−04	8.3E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.3E−03	1.1E−05	8.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.8E−09	3.0E−08	2.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.5E−09	1.1E−10	8.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.2E−02	6.4E−03	5.8E−03	1.9E−02	2.6E+00	6.0E+00	1.9E+01	3.7E−01	6.6E−01		1.0E−03	2.8E−04	1.8E−06	1.3E−04	0.0E+00	4.2E−05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26f
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
SOUTHEAST OF FEMP, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.8E−07	5.9E−13	4.3E−12	NA	NA	NA	NA	NA	NA	8.7E−01	5.7E−01	1.0E−06	7.8E−06	ND	ND
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.8E−04	9.2E−05	2.2E−04	NA	NA	NA	NA	NA	NA	7.2E−05	7.1E−05	1.2E−05	2.8E−05	ND	9.6E−07
arsenic	ND	1.1E−04	3.8E−05	2.7E−05	NA	NA	NA	NA	NA	NA	2.2E−14	8.4E−15	1.5E−15	1.1E−15	ND	4.7E−17
barium	8.1E−05	1.5E−05	1.1E−06	6.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	6.3E−07	1.3E−07	2.8E−09	NA	NA	NA	NA	NA	NA	2.4E−19	8.2E−20	6.3E−21	1.3E−22	ND	4.8E−20
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.7E−04	2.2E−05	9.4E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.5E−05	1.2E−05	7.5E−05	NA	NA	NA	NA	NA	NA	1.4E−02	7.5E−03	1.8E−03	1.1E−02	ND	1.3E−04
cobalt	2.8E−03	6.8E−07	2.1E−06	4.9E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.2E−05	3.2E−05	1.1E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
magnesium	ND	1.3E−05	5.3E−06	9.9E−05	NA	NA	NA	NA	NA	NA	1.0E+00	5.4E−01	1.2E−01	2.3E+00	ND	4.1E−02
manganese	5.8E−03	5.9E−05	6.1E−06	1.2E−04	NA	NA	NA	NA	NA	NA	1.1E−03	1.3E−03	7.0E−05	1.4E−03	ND	7.6E−05
mercury	3.5E−07	4.3E−06	1.5E−04	6.5E−06	NA	NA	NA	NA	NA	NA	1.2E−07	5.8E−08	1.2E−06	5.1E−08	ND	1.7E−09
molybdenum	ND	1.0E−05	1.2E−05	6.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	2.2E−05	9.5E−06	3.7E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.5E−06	1.8E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.4E−05	1.7E−05	2.6E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	9.9E−06	7.6E−05	8.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.1E−03	1.2E−05	8.2E−04	2.1E−02	1.3E−03	8.8E−02	4.7E−02	9.4E−02	NA	1.9E+01	4.9E+00	3.3E−02	2.4E+00	ND	7.4E−01
vanadium	ND	1.2E−05	4.0E−06	7.5E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.5E−04	1.6E−03	3.8E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	7.7E−10	6.2E−11	8.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.2E−08	5.0E−09	6.3E−14	4.8E−13	8.5E−08	2.6E−10
chloroform	ND	1.2E−11	1.2E−15	9.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	5.1E−08	ND
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7E−01	1.7E−01	1.1E−05	8.3E−05	ND	1.6E−02
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2E−01	1.9E−01	2.3E−06	3.0E−05	ND	6.4E−02
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.0E−13	2.4E−10	2.0E−15	2.4E−14	NA	NA	NA	NA	NA	NA	1.3E−16	3.3E−17	8.5E−23	1.1E−21	7.0E−17	3.5E−18
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.9E−03	3.1E−03	6.2E−08	4.7E−07	ND	2.6E−04
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	9.4E−04	3.0E−06	2.3E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.5E−09	9.1E−09	6.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.5E−09	6.6E−11	4.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.7E−03	3.0E−03	2.1E−03	9.2E−03	2.1E−02	1.3E−03	8.8E−02	4.7E−02	9.4E−02		2.2E+01	6.4E+00	1.6E−01	4.7E+00	1.4E−07	8.7E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

TABLE A.VII-26g
HAZARD QUOTIENTS FOR OFF-PROPERTY CHILD AT WELL 2071, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.6E-07	5.0E-13	3.7E-12	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.1E-04	1.0E-04	2.4E-04	2.1E-11	2.1E-11	3.5E-12	8.2E-12	ND	2.9E-13
arsenic	ND	1.1E-04	3.8E-05	2.7E-05	2.1E-22	7.8E-23	1.4E-23	1.0E-23	ND	4.3E-25
barium	8.1E-05	1.5E-05	1.1E-06	6.1E-05	NA	NA	NA	NA	NA	NA
beryllium	ND	6.7E-07	1.4E-07	3.0E-09	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.0E-04	2.6E-05	1.1E-03	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.7E-05	1.3E-05	8.3E-05	7.2E-09	3.7E-09	8.8E-10	5.7E-09	ND	6.4E-11
cobalt	3.0E-03	7.3E-07	2.2E-06	5.2E-06	NA	NA	NA	NA	NA	NA
copper	ND	2.8E-05	2.7E-05	9.7E-05	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.4E-05	5.5E-06	1.0E-04	7.6E-09	4.0E-09	9.0E-10	1.7E-08	ND	3.0E-10
manganese	6.3E-03	6.3E-05	6.5E-06	1.3E-04	2.0E-08	2.4E-08	1.2E-09	2.5E-08	ND	1.3E-09
mercury	4.1E-07	5.0E-06	1.8E-04	7.6E-06	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.0E-05	1.2E-05	6.8E-05	NA	NA	NA	NA	NA	NA
nickel	ND	2.5E-05	1.1E-05	4.2E-05	NA	NA	NA	NA	NA	NA
selenium	ND	1.5E-06	1.8E-06	1.1E-05	NA	NA	NA	NA	NA	NA
silver	ND	2.2E-05	1.5E-05	2.4E-03	NA	NA	NA	NA	NA	NA
thallium	ND	1.2E-05	9.0E-05	1.1E-04	NA	NA	NA	NA	NA	NA
uranium-total	ND	1.3E-03	1.4E-05	9.8E-04	2.7E-02	7.2E-03	4.8E-05	3.5E-03	ND	1.1E-03
vanadium	ND	1.2E-05	4.1E-06	7.8E-07	NA	NA	NA	NA	NA	NA
zinc	ND	2.5E-04	2.7E-03	6.3E-03	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-09	1.0E-10	1.4E-09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E-11	2.4E-15	1.9E-14	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	4.0E-02	1.8E-02	1.2E-06	8.9E-06	ND	1.7E-03
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E-12	5.0E-10	4.3E-15	5.2E-14	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.9E-03	6.0E-06	4.5E-05	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	2.4E-09	1.5E-08	1.1E-07	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.6E-09	7.0E-11	5.3E-10	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	9.3E-03	4.3E-03	3.2E-03	1.2E-02	6.7E-02	2.6E-02	4.9E-05	3.5E-03	0.0E+00	2.8E-03

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–26h
HAZARD QUOTIENTS FOR OFF–PROPERTY CHILD
AT WELL 2119, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.8E–07	5.9E–13	4.3E–12	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	3.6E–04	1.2E–04	2.8E–04	5.1E–05	5.1E–05	8.4E–06	2.0E–05	ND	6.9E–07
arsenic	ND	1.2E–04	4.4E–05	3.1E–05	1.1E–15	4.1E–16	7.4E–17	5.2E–17	ND	2.3E–18
barium	9.4E–05	1.7E–05	1.3E–06	7.1E–05	NA	NA	NA	NA	NA	NA
beryllium	ND	7.5E–07	1.6E–07	3.4E–09	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.2E–04	2.8E–05	1.2E–03	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.9E–05	1.4E–05	9.2E–05	1.8E–03	9.1E–04	2.1E–04	1.4E–03	ND	1.6E–05
cobalt	3.4E–03	8.3E–07	2.6E–06	6.0E–06	NA	NA	NA	NA	NA	NA
copper	ND	3.1E–05	3.1E–05	1.1E–04	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	1.6E–05	6.5E–06	1.2E–04	2.9E–01	1.5E–01	3.5E–02	6.6E–01	ND	1.2E–02
manganese	7.2E–03	7.2E–05	7.5E–06	1.5E–04	3.6E–04	4.3E–04	2.3E–05	4.6E–04	ND	2.4E–05
mercury	4.9E–07	6.0E–06	2.2E–04	9.1E–06	2.9E–08	1.4E–08	2.8E–07	1.2E–08	ND	3.8E–10
molybdenum	ND	1.2E–05	1.4E–05	8.0E–05	NA	NA	NA	NA	NA	NA
nickel	ND	2.7E–05	1.2E–05	4.6E–05	NA	NA	NA	NA	NA	NA
selenium	ND	1.7E–06	2.0E–06	1.3E–05	NA	NA	NA	NA	NA	NA
silver	ND	2.6E–05	1.8E–05	2.8E–03	NA	NA	NA	NA	NA	NA
thallium	ND	1.2E–05	9.4E–05	1.1E–04	NA	NA	NA	NA	NA	NA
uranium–total	ND	1.7E–03	1.7E–05	1.2E–03	4.3E+00	1.1E+00	7.6E–03	5.5E–01	ND	1.7E–01
vanadium	ND	1.3E–05	4.6E–06	8.7E–07	NA	NA	NA	NA	NA	NA
zinc	ND	2.1E–04	2.3E–03	5.3E–03	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	1.0E–09	8.3E–11	1.1E–09	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.9E–11	1.8E–15	1.5E–14	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E–12	3.8E–10	3.3E–15	3.9E–14	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.4E–03	4.4E–06	3.3E–05	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.0E–09	1.3E–08	9.3E–08	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.9E–09	8.1E–11	6.1E–10	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.1E–02	4.2E–03	2.9E–03	1.2E–02	4.6E+00	1.3E+00	4.3E–02	1.2E+00	0.0E+00	1.9E–01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-26i
HAZARD QUOTIENTS FOR OFF-PROPERTY CHILD NEAR THE GREAT MIAMI RIVER, FUTURE LAND USE

Transfer Media:	Air				Groundwater					
Exposure Pathways: Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.9E-09	9.4E-15	7.0E-14	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
antimony	ND	6.3E-06	2.1E-06	4.8E-06	2.0E-14	2.0E-14	3.3E-15	7.8E-15	ND	2.7E-16
arsenic	ND	2.1E-06	7.6E-07	5.4E-07	NA	NA	NA	NA	NA	NA
barium	1.6E-06	3.0E-07	2.2E-08	1.2E-06	NA	NA	NA	NA	NA	NA
beryllium	ND	1.3E-08	2.7E-09	5.6E-11	NA	NA	NA	NA	NA	NA
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.8E-06	4.8E-07	2.0E-05	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.2E-07	2.4E-07	1.5E-06	1.7E-03	8.9E-04	2.1E-04	1.4E-03	ND	1.5E-05
cobalt	5.5E-05	1.4E-08	4.2E-08	9.7E-08	NA	NA	NA	NA	NA	NA
copper	ND	4.9E-07	4.9E-07	1.7E-06	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA
magnesium	ND	2.5E-07	1.0E-07	1.9E-06	8.6E-02	4.5E-02	1.0E-02	1.9E-01	ND	3.4E-03
manganese	1.2E-04	1.2E-06	1.3E-07	2.6E-06	8.0E-06	9.4E-06	5.0E-07	1.0E-05	ND	5.4E-07
mercury	8.2E-09	1.0E-07	3.6E-06	1.5E-07	9.2E-11	4.3E-11	8.8E-10	3.8E-11	ND	1.2E-12
molybdenum	ND	2.0E-07	2.3E-07	1.4E-06	NA	NA	NA	NA	NA	NA
nickel	ND	4.7E-07	2.0E-07	7.9E-07	NA	NA	NA	NA	NA	NA
selenium	ND	3.2E-08	3.9E-08	2.4E-07	NA	NA	NA	NA	NA	NA
silver	ND	4.4E-07	3.0E-07	4.7E-05	NA	NA	NA	NA	NA	NA
thallium	ND	2.2E-07	1.7E-06	2.0E-06	NA	NA	NA	NA	NA	NA
uranium-total	ND	2.7E-05	2.8E-07	2.0E-05	2.6E+00	7.0E-01	4.6E-03	3.4E-01	ND	1.1E-01
vanadium	ND	2.2E-07	7.8E-08	1.5E-08	NA	NA	NA	NA	NA	NA
zinc	ND	4.3E-06	4.6E-05	1.1E-04	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.2E-11	1.8E-12	2.3E-11	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.1E-13	4.1E-17	3.3E-16	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.6E-14	8.8E-12	7.6E-17	9.0E-16	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.2E-05	1.4E-07	1.0E-06	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	4.5E-11	2.8E-10	2.1E-09	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.1E-11	1.4E-12	1.0E-11	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.8E-04	9.0E-05	5.7E-05	2.2E-04	2.7E+00	7.4E-01	1.5E-02	5.3E-01	0.0E+00	1.1E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–27a
ILCRs FOR GREAT MIAMI RIVER USER
CONFLUENCE WITH PADDYS RUN, FUTURE LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Contaminants of Concern	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
Radionuclides									
Cs_{137+1d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.9E−07	3.4E−08	3.6E−10	1.3E−10	NA	NA	1.0E−10	NA	2.2E−08
Pu_{238}	5.6E−08	8.4E−09	3.1E−13	2.6E−13	NA	NA	3.1E−11	NA	1.6E−08
$Pu_{239/240}$	2.3E−08	3.4E−09	1.4E−13	1.1E−13	NA	NA	1.3E−11	NA	6.6E−09
Ra_{226+8d}	1.6E−05	2.9E−06	1.4E−07	9.9E−07	5.4E−08	NA	8.8E−09	NA	9.1E−06
Ru_{106}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.9E−07	4.8E−08	5.0E−09	1.0E−07	NA	NA	1.0E−10	NA	6.4E−08
Tc_{99}	8.3E−06	1.4E−06	1.4E−06	6.9E−06	NA	NA	4.6E−09	NA	1.4E−06
Th_{230}	4.7E−08	7.2E−09	3.8E−12	1.3E−11	NA	NA	2.6E−11	NA	1.6E−08
$Th_{232+10d}$	4.7E−08	7.1E−09	3.7E−12	1.3E−11	NA	NA	2.6E−11	NA	1.6E−08
U_{234}	5.7E−05	8.7E−06	1.3E−07	1.6E−06	NA	NA	3.2E−08	NA	1.3E−06
$U_{235/236}$	3.5E−06	5.4E−07	8.0E−09	9.9E−08	NA	NA	2.0E−09	NA	8.2E−08
U_{238+2d}	1.2E−04	1.8E−05	2.7E−07	3.3E−06	NA	NA	6.5E−08	NA	2.7E−06
Rn_{222+4d}	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.0E−04	3.1E−05	2.0E−06	1.3E−05	5.4E−08		1.1E−07		1.5E−05
Chemicals									
arsenic	1.2E−05	2.6E−06	1.1E−06	1.3E−07	ND	3.6E−08	6.7E−09	7.7E−09	6.1E−06
beryllium	3.9E−07	7.7E−08	1.3E−08	4.8E−11	ND	1.1E−07	2.2E−10	2.4E−08	8.5E−08
cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	8.3E−09	3.1E−09	6.9E−13	8.9E−13	ND	8.0E−10	4.6E−12	5.5E−11	2.2E−09
carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	8.3E−08	2.2E−08	3.1E−12	4.1E−12	1.6E−07	5.0E−09	4.6E−11	3.4E−10	1.6E−08
4−methylphenol	2.3E−04	3.0E−05	8.3E−10	1.9E−09	ND	2.6E−05	1.3E−07	2.1E−06	4.3E−05
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	1.1E−07	7.1E−08	1.4E−07	1.8E−07	ND	3.2E−06	6.0E−11	2.1E−07	2.8E−05
aroclor−1260	3.3E−08	8.8E−09	2.2E−07	2.9E−07	ND	6.1E−06	1.8E−11	4.0E−07	6.1E−05
4,4−ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.1E−08	1.6E−09	1.0E−09	1.3E−09	ND	5.2E−08	6.0E−12	3.4E−09	1.2E−06
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E−04	3.3E−05	1.4E−06	6.0E−07	1.6E−07	3.5E−05	1.4E−07	2.7E−06	1.4E−04
Sum Chem (BaP for PAHs):	2.4E−04	3.3E−05	1.4E−06	6.0E−07	1.6E−07	3.5E−05	1.4E−07	2.7E−06	1.4E−04
TOTAL ALL (TEF Approach):	4.5E−04	6.5E−05	3.4E−06	1.4E−05	2.1E−07	3.5E−05	2.5E−07	2.7E−06	1.5E−04
TOTAL ALL (BaP Approach):	4.5E−04	6.5E−05	3.4E−06	1.4E−05	2.1E−07	3.5E−05	2.5E−07	2.7E−06	1.5E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-28a
HAZARD QUOTIENTS FOR GREAT MIAMI RIVER USER CONFLUENCE WITH PADDYS RUN, FUTURE LAND USE

Transfer Media:	Great Miami River Surface Water								
Exposure Pathways: / Toxicants	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing	Incidental Ingestion while Swimming	Dermal Contact while Swimming	Ingestion Of Fish
cyanide	1.7E-02	6.2E-03	2.5E-08	3.3E-08	ND	ND	9.2E-06	ND	2.1E-04
aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
antimony	9.0E-03	5.1E-03	1.9E-03	7.6E-04	ND	1.7E-04	5.0E-06	3.7E-05	1.0E-04
arsenic	2.3E-02	5.0E-03	2.0E-03	2.4E-04	ND	6.9E-05	1.3E-05	1.5E-05	1.2E-02
barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	1.8E-05	3.6E-06	6.1E-07	2.2E-09	ND	5.2E-06	1.0E-08	1.1E-06	4.0E-06
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	NA	NA	NA	NA	NA	NA	NA	NA	NA
cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	NA	NA	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND
magnesium	5.1E-02	1.5E-02	7.9E-03	2.6E-02	ND	3.0E-03	2.9E-05	6.3E-04	ND
manganese	4.9E-03	3.3E-03	3.9E-04	1.4E-03	ND	4.7E-04	[illegible]7E-06	1.0E-04	ND
mercury	1.3E-02	3.4E-03	1.6E-01	1.1E-03	ND	2.4E-04	[illegible]0E-06	5.2E-05	8.0E-01
molybdenum	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium-total	1.6E+00	2.4E-01	3.6E-03	4.5E-02	ND	9.1E-02	8.9E-04	2.0E-02	3.7E-05
vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	6.7E-06	2.5E-06	5.6E-10	7.2E-10	ND	6.4E-07	3.7E-09	4.4E-08	1.8E-06
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	3.0E-05	7.8E-06	1.1E-09	1.4E-09	ND	1.8E-06	1.6E-08	1.2E-07	5.6E-06
4-methylphenol	1.2E-02	1.5E-03	4.2E-08	9.5E-08	ND	1.3E-03	6.5E-06	1.0E-04	2.1E-03
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroanaline	1.1E-03	4.0E-04	1.8E-08	2.4E-08	ND	8.4E-05	6.2E-07	6.1E-06	8.8E-05
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.4E-04	2.1E-05	1.3E-05	1.7E-05	ND	6.7E-04	7.7E-08	4.4E-05	1.5E-02
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.7E+00	2.8E-01	1.7E-01	7.4E-02	0.0E+00	9.7E-02	9.6E-04	2.1E-02	8.3E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29a
ILCRs FOR RME ON–PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.1E−11	1.3E−10	4.6E−10	6.5E−10	4.8E−07	4.2E−06	5.8E−06	1.1E−07	NA	7.5E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.5E−09	4.2E−10	7.6E−12	2.8E−12	5.2E−07	4.5E−08	1.6E−08	3.6E−07	NA	6.5E−06	6.3E−07	1.1E−07	1.2E−09	4.4E−10	NA	NA
Pu_{238}	2.9E−07	1.0E−08	7.6E−13	6.1E−13	2.5E−08	4.1E−10	3.3E−10	3.8E−06	NA	4.6E−09	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.9E−08	1.5E−09	2.8E−13	2.2E−13	7.1E−09	1.2E−10	9.5E−11	1.1E−06	NA	1.2E−09	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.0E−06	8.6E−07	9.7E−08	7.0E−07	1.8E−06	1.1E−06	7.9E−06	8.4E−06	NA	6.1E−04	1.2E−04	2.3E−05	1.1E−06	7.8E−06	4.2E−07	NA
Ru_{106}	2.6E−10	3.5E−11	7.0E−12	8.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.0E−11	4.7E−10	8.4E−11	1.7E−09	8.9E−06	3.8E−06	7.7E−05	2.5E−07	NA	ND	5.8E−07	1.5E−07	1.6E−08	3.2E−07	NA	NA
Tc_{99}	5.7E−11	6.3E−11	1.0E−10	4.7E−10	6.7E−06	5.2E−05	2.4E−04	3.1E−08	NA	1.3E−10	2.1E−04	3.6E−05	3.6E−05	1.7E−04	NA	NA
Th_{230}	9.4E−06	2.7E−08	6.9E−11	2.3E−10	4.5E−08	4.9E−09	1.6E−08	3.6E−06	NA	1.4E−07	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.7E−06	2.7E−08	6.8E−11	2.3E−10	2.5E−07	2.7E−08	9.1E−08	2.0E−05	NA	9.5E−03	NA	NA	NA	NA	NA	NA
U_{234}	2.2E−05	8.5E−08	2.0E−09	2.4E−08	1.8E−05	2.4E−06	2.8E−05	3.1E−05	NA	5.4E−07	7.4E−04	1.1E−04	1.7E−06	2.1E−05	NA	NA
$U_{235/236}$	1.7E−06	7.0E−09	1.6E−10	2.0E−09	1.5E−06	2.0E−07	2.4E−06	2.6E−06	NA	3.6E−04	3.4E−05	5.1E−06	7.6E−08	9.4E−07	NA	NA
U_{238+2d}	4.7E−05	1.6E−07	3.8E−09	4.6E−08	4.0E−05	5.3E−06	6.4E−05	6.9E−05	NA	8.3E−04	1.3E−03	1.9E−04	2.9E−06	3.5E−05	NA	NA
Rn_{222+4d}	1.8E−05	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.0E−04	1.2E−06	1.0E−07	7.7E−07	7.8E−05	6.9E−05	4.3E−04	1.4E−04		1.1E−02	2.4E−03	3.7E−04	4.2E−05	2.4E−04	4.2E−07	
Chemicals																
arsenic	7.0E−08	7.1E−08	5.7E−08	6.9E−09	4.1E−05	9.8E−05	1.2E−05	4.7E−05	1.6E−06	NA	4.6E−04	1.0E−04	4.1E−05	4.9E−06	ND	1.4E−06
beryllium	4.4E−09	1.8E−08	8.4E−09	3.0E−11	2.8E−06	5.3E−06	1.9E−08	1.3E−05	1.3E−05	NA	5.0E−09	9.9E−10	1.7E−10	6.2E−13	ND	1.4E−09
cadmium	1.2E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	4.1E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	9.4E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.4E−16	1.6E−15	6.2E−19	8.0E−19	6.2E−08	2.9E−11	3.7E−11	1.9E−10	3.3E−12	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.7E−13	6.7E−14	1.5E−13	3.7E−08	1.6E−08	3.5E−08	9.9E−09	1.4E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.3E−13	1.0E−14	1.3E−14	3.9E−07	4.7E−09	5.9E−09	7.4E−09	7.9E−08	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.7E−15	1.7E−15	3.7E−19	5.0E−19	5.4E−08	1.5E−11	2.1E−11	1.4E−10	1.3E−09	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.9E−06	7.8E−10	1.1E−09	6.1E−09	6.5E−08	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	4.4E−09	1.9E−12	2.4E−12	1.3E−11	1.4E−10	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.9E−15	1.9E−13	3.7E−18	7.4E−18	2.8E−07	7.7E−12	1.6E−11	3.3E−10	3.2E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.7E−13	1.1E−15	1.6E−15	2.6E−07	2.3E−09	3.3E−09	5.1E−09	5.4E−08	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	5.4E−12	2.6E−16	3.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.9E−09	6.5E−07	4.7E−09	6.0E−09	1.7E−07	1.6E−09	2.0E−09	2.8E−09	4.0E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.7E−08	4.7E−07	3.8E−10	4.8E−10	1.3E−07	1.2E−10	1.5E−10	5.7E−10	5.6E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.4E−11	2.0E−11	2.6E−11	3.3E−11	1.1E−06	2.7E−06	3.4E−06	3.7E−07	3.7E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E−10	1.4E−09	5.0E−09	6.4E−09	3.4E−05	2.9E−04	3.7E−04	2.1E−05	2.1E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E−11	1.8E−10	6.7E−10	8.5E−10	4.4E−06	3.9E−05	5.0E−05	2.7E−06	2.7E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	8.1E−12	6.3E−11	1.3E−09	1.6E−09	5.7E−07	4.7E−05	5.9E−05	9.1E−07	9.1E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.7E−13	1.4E−12	1.8E−12	2.3E−12	6.9E−08	1.7E−07	2.1E−07	2.3E−08	2.3E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.5E−11	4.2E−10	8.2E−09	1.0E−08	4.0E−06	3.3E−04	4.2E−04	6.4E−06	6.4E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.4E−11	2.6E−10	2.7E−09	3.4E−09	4.1E−06	1.5E−04	1.9E−04	4.6E−06	4.6E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.0E−08	6.1E−08	7.7E−08	7.9E−05	5.5E−04	6.9E−04	4.3E−05	1.1E−04	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	4.4E−11	4.9E−09	6.2E−09	4.3E−06	9.7E−04	1.2E−03	1.0E−05	2.6E−05	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.3E−13	8.8E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.0E−13	4.4E−13	5.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.9E−14	2.5E−13	2.3E−13	2.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.3E−13	4.3E−12	4.2E−13	5.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	4.7E−09	1.4E−05	2.0E−05	3.4E−08	6.5E−08	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.4E−13	3.8E−12	2.9E−09	4.2E−09	6.6E−10	2.2E−05	3.1E−05	1.2E−08	2.2E−08	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E−13	1.1E−12	1.2E−09	1.8E−09	6.1E−10	3.9E−05	5.6E−05	1.4E−08	2.6E−08	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.3E−07	1.2E−06	1.6E−07	1.2E−07	1.8E−04	2.6E−03	3.1E−03	1.5E−04	1.9E−04		4.6E−04	1.0E−04	4.1E−05	4.9E−06	0.0E+00	1.4E−06
Sum Chem (BaP for PAHs):	5.3E−07	1.2E−06	1.9E−07	1.7E−07	2.5E−04	4.1E−03	5.1E−03	2.0E−04	2.4E−04		4.6E−04	1.0E−04	4.1E−05	4.9E−06	0.0E+00	1.4E−06
TOTAL ALL (TEF Approach):	1.0E−04	2.4E−06	2.6E−07	9.0E−07	2.6E−04	2.6E−03	3.6E−03	2.9E−04	1.9E−04	1.1E−02	2.8E−03	4.7E−04	8.3E−05	2.4E−04	4.2E−07	1.4E−06
TOTAL ALL (BaP Approach):	1.0E−04	2.4E−06	3.0E−07	9.4E−07	3.3E−04	4.2E−03	5.5E−03	3.4E−04	2.4E−04	1.1E−02	2.8E−03	4.7E−04	8.3E−05	2.4E−04	4.2E−07	1.4E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29b
ILCRs FOR RME ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.3E−12	1.5E−11	5.3E−11	7.5E−11	4.1E−07	3.6E−06	5.0E−06	9.5E−08	NA	6.4E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.0E−10	2.8E−11	5.1E−13	1.9E−13	1.1E−06	9.9E−08	3.6E−08	7.9E−07	NA	1.4E−05	2.5E−08	4.6E−09	4.8E−11	1.8E−11	NA	NA
Pu_{238}	1.6E−08	5.6E−10	4.2E−14	3.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.8E−09	1.5E−10	2.7E−14	2.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	9.7E−08	8.1E−08	9.1E−09	6.5E−08	NA	NA	NA	NA	NA	NA	1.2E−04	2.3E−05	1.1E−06	7.8E−06	4.2E−07	NA
Ru_{106}	3.4E−11	4.5E−12	9.0E−13	1.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	7.2E−12	4.2E−11	7.6E−12	1.5E−10	8.1E−06	3.5E−06	7.0E−05	2.2E−07	NA	ND	2.4E−10	6.3E−11	6.5E−12	1.3E−10	NA	NA
Tc_{99}	7.2E−12	7.9E−12	1.3E−11	6.0E−11	2.0E−06	1.5E−05	7.3E−05	9.2E−09	NA	4.0E−11	7.8E−06	1.3E−06	1.4E−06	6.5E−06	NA	NA
Th_{230}	4.4E−07	1.3E−09	3.2E−12	1.1E−11	1.2E−09	1.4E−10	4.5E−10	1.0E−07	NA	3.9E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.8E−07	1.8E−09	4.5E−12	1.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	1.1E−06	4.4E−09	1.0E−10	1.2E−09	1.6E−07	2.2E−08	2.6E−07	2.8E−07	NA	5.0E−09	1.7E−06	2.6E−07	3.9E−09	4.8E−08	NA	NA
$U_{235/236}$	9.6E−08	3.9E−10	9.1E−12	1.1E−10	2.9E−08	3.8E−09	4.6E−08	4.9E−08	NA	7.0E−06	7.8E−08	1.2E−08	1.8E−10	2.2E−09	NA	NA
U_{238+2d}	2.7E−06	9.4E−09	2.2E−10	2.6E−09	3.6E−07	4.8E−08	5.8E−07	6.3E−07	NA	7.6E−06	2.9E−06	4.4E−07	6.6E−09	8.2E−08	NA	NA
Rn_{222+4d}	2.8E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.4E−06	9.9E−08	9.5E−09	7.0E−08	1.2E−05	2.3E−05	1.5E−04	2.2E−06		9.3E−05	1.4E−04	2.5E−05	2.4E−06	1.4E−05	4.2E−07	
Chemicals																
arsenic	1.8E−08	1.9E−08	1.5E−08	1.8E−09	NA	NA	NA	NA	NA	NA	6.5E−05	1.4E−05	5.8E−06	7.0E−07	ND	2.0E−07
beryllium	1.1E−09	4.4E−09	2.1E−09	7.6E−12	3.7E−06	7.1E−06	2.5E−08	1.7E−05	1.7E−05	NA	4.6E−20	9.1E−21	1.6E−21	5.7E−24	ND	1.3E−20
cadmium	4.5E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.7E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	4.7E−17	5.4E−16	2.1E−19	2.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	8.9E−14	1.6E−14	3.6E−14	7.7E−08	3.2E−08	7.3E−08	2.0E−08	2.9E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	6.9E−14	7.6E−16	9.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E−16	3.6E−16	8.0E−20	1.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.4E−16	1.2E−14	2.3E−19	4.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	3.2E−14	2.1E−16	2.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.8E−12	8.7E−17	1.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.4E−08	3.2E−06	2.3E−08	2.9E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	8.2E−08	2.2E−06	1.8E−09	2.2E−09	2.5E−08	2.2E−11	2.8E−11	1.1E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.1E−12	2.5E−12	3.2E−12	4.1E−12	3.9E−08	9.5E−08	1.2E−07	1.3E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E−11	1.9E−10	6.8E−10	8.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.8E−12	2.9E−11	1.1E−10	1.4E−10	2.0E−07	1.8E−06	2.3E−06	1.2E−07	1.2E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.4E−12	1.1E−11	2.2E−10	2.8E−10	3.5E−08	2.9E−06	3.7E−06	5.6E−08	5.6E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.6E−14	2.1E−13	2.8E−13	3.5E−13	4.2E−09	1.0E−08	1.3E−08	1.4E−09	1.4E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.9E−12	6.0E−11	1.2E−09	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.5E−12	4.1E−11	4.4E−10	5.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.3E−10	4.3E−09	5.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.5E−11	1.7E−09	2.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−13	1.7E−12	2.1E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.7E−14	2.5E−14	3.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.4E−15	3.5E−14	3.2E−14	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.3E−14	3.6E−13	3.5E−14	4.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.3E−13	7.5E−13	5.8E−10	8.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	6.0E−14	3.6E−13	4.2E−10	5.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.2E−07	5.4E−06	5.1E−08	4.6E−08	4.1E−06	1.2E−05	6.2E−06	1.7E−05	1.7E−05		6.5E−05	1.4E−05	5.8E−06	7.0E−07	0.0E+00	2.0E−07
Sum Chem (BaP for PAHs):	2.2E−07	5.4E−06	5.7E−08	5.3E−08	7.3E−06	8.0E−05	9.3E−05	1.9E−05	1.9E−05		6.5E−05	1.4E−05	5.8E−06	7.0E−07	0.0E+00	2.0E−07
TOTAL ALL (TEF Approach):	7.6E−06	5.5E−06	6.1E−08	1.2E−07	1.6E−05	3.5E−05	1.5E−04	1.9E−05	1.7E−05	9.3E−05	2.0E−04	3.9E−05	8.2E−06	1.5E−05	4.2E−07	2.0E−07
TOTAL ALL (BaP Approach):	7.6E−06	5.5E−06	6.7E−08	1.2E−07	1.9E−05	1.0E−04	2.4E−04	2.2E−05	1.9E−05	9.3E−05	2.0E−04	3.9E−05	8.2E−06	1.5E−05	4.2E−07	2.0E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29c
ILCRs FOR RME ON–PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	4.7E−12	5.6E−11	2.0E−10	2.8E−10	4.3E−07	3.7E−06	5.2E−06	9.9E−08	NA	6.7E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.7E−09	9.3E−11	1.7E−12	6.1E−13	NA	NA	NA	NA	NA	NA	2.1E−07	3.9E−08	4.1E−10	1.5E−10	NA	NA
Pu_{238}	5.3E−08	1.9E−09	1.4E−13	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.2E−08	4.4E−10	8.3E−14	6.6E−14	1.7E−09	2.9E−11	2.3E−11	2.6E−07	NA	2.9E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.3E−06	1.1E−06	1.2E−07	8.7E−07	3.2E−07	1.9E−07	1.4E−06	1.5E−06	NA	1.1E−04	1.3E−04	2.3E−05	1.1E−06	8.0E−06	4.3E−07	NA
Ru_{106}	4.8E−11	6.5E−12	1.3E−12	1.6E−15	3.0E−07	3.3E−07	4.2E−10	1.1E−07	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.9E−11	2.9E−10	5.2E−11	1.0E−09	1.5E−05	6.4E−06	1.3E−04	4.1E−07	NA	ND	1.4E−08	3.7E−09	3.9E−10	7.8E−09	NA	NA
Tc_{99}	6.5E−11	7.1E−11	1.1E−10	5.3E−10	NA	NA	NA	NA	NA	NA	6.8E−05	1.2E−05	1.2E−05	5.6E−05	NA	NA
Th_{230}	1.2E−05	3.4E−08	8.5E−11	2.8E−10	1.4E−09	1.5E−10	5.0E−10	1.1E−07	NA	4.3E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.4E−06	1.4E−08	3.5E−11	1.2E−10	2.1E−07	2.3E−08	7.7E−08	1.7E−05	NA	8.1E−03	NA	NA	NA	NA	NA	NA
U_{234}	6.6E−06	2.6E−08	6.0E−10	7.2E−09	8.6E−08	1.1E−08	1.4E−07	1.5E−07	NA	2.6E−09	3.9E−04	6.0E−05	8.9E−07	1.1E−05	NA	NA
$U_{235/236}$	4.7E−07	1.9E−09	4.5E−11	5.3E−10	5.1E−07	6.8E−08	8.1E−07	8.8E−07	NA	1.2E−04	1.8E−05	2.7E−06	4.0E−08	5.0E−07	NA	NA
U_{238+2d}	1.3E−05	4.5E−08	1.0E−09	1.3E−08	1.9E−07	2.6E−08	3.1E−07	3.3E−07	NA	4.0E−06	6.7E−04	1.0E−04	1.5E−06	1.9E−05	NA	NA
Rn_{222+4d}	1.0E−05	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.5E−05	1.2E−06	1.2E−07	8.9E−07	1.7E−05	1.1E−05	1.4E−04	2.1E−05		8.4E−03	1.3E−03	2.0E−04	1.5E−05	9.4E−05	4.3E−07	
Chemicals																
arsenic	3.5E−08	3.5E−08	2.8E−08	3.4E−09	NA	NA	NA	NA	NA	NA	2.2E−04	4.9E−05	2.0E−05	2.4E−06	ND	6.7E−07
beryllium	2.4E−09	9.8E−09	4.7E−09	1.7E−11	2.2E−06	4.3E−06	1.5E−08	1.0E−05	1.0E−05	NA	1.9E−13	3.7E−14	6.4E−15	2.3E−17	ND	5.4E−14
cadmium	7.5E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	2.1E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	5.0E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.1E−16	2.3E−15	9.4E−19	1.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.6E−13	6.5E−14	1.4E−13	1.2E−08	5.3E−09	1.2E−08	3.3E−09	4.7E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	8.4E−13	9.2E−15	1.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−15	1.7E−15	3.9E−19	5.3E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.4E−15	2.3E−13	4.5E−18	9.0E−18	5.2E−07	1.4E−11	2.8E−11	6.1E−10	5.8E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	4.8E−14	3.1E−16	4.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	7.8E−12	3.8E−16	5.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	3.2E−09	7.1E−07	5.2E−09	6.6E−09	1.4E−07	1.2E−09	1.6E−09	2.3E−09	3.2E−08	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.9E−08	5.3E−07	4.2E−10	5.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E−11	1.5E−11	1.9E−11	2.4E−11	3.0E−07	7.3E−07	9.2E−07	1.0E−07	1.0E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.5E−10	1.1E−09	4.0E−09	5.1E−09	8.6E−06	7.2E−05	9.2E−05	5.1E−06	5.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.8E−11	1.4E−10	4.9E−10	6.3E−10	3.6E−06	3.2E−05	4.0E−05	2.2E−06	2.2E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	7.9E−12	6.1E−11	1.3E−09	1.6E−09	1.0E−07	8.5E−06	1.1E−05	1.6E−07	1.6E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.1E−13	9.1E−13	1.2E−12	1.5E−12	3.2E−08	7.7E−08	9.7E−08	1.1E−08	1.1E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.0E−11	3.8E−10	7.4E−09	9.4E−09	4.5E−07	3.7E−05	4.7E−05	7.2E−07	7.2E−07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.6E−11	2.0E−10	2.1E−09	2.6E−09	6.2E−07	2.2E−05	2.9E−05	7.1E−07	7.1E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	5.4E−09	3.2E−08	4.0E−08	5.1E−07	3.5E−06	4.5E−06	2.8E−07	7.1E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	6.8E−11	7.5E−09	9.5E−09	1.1E−06	2.4E−04	3.1E−04	2.6E−06	6.5E−06	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.6E−13	6.5E−12	8.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	6.0E−14	8.8E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.1E−15	5.2E−14	4.8E−14	6.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.3E−13	8.7E−13	8.5E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.6E−13	1.5E−12	1.2E−09	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.6E−13	1.5E−12	1.8E−09	2.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.9E−07	1.3E−06	9.6E−08	8.4E−08	1.8E−05	4.2E−04	5.3E−04	2.2E−05	2.7E−05		2.2E−04	4.9E−05	2.0E−05	2.4E−06	0.0E+00	6.7E−07
Sum Chem (BaP for PAHs):	2.9E−07	1.3E−06	1.3E−07	1.2E−07	5.6E−05	8.8E−04	1.1E−03	4.6E−05	5.0E−05		2.2E−04	4.9E−05	2.0E−05	2.4E−06	0.0E+00	6.7E−07
TOTAL ALL (TEF Approach):	4.5E−05	2.5E−06	2.2E−07	9.8E−07	3.5E−05	4.3E−04	6.7E−04	4.3E−05	2.7E−05	8.4E−03	1.5E−03	2.5E−04	3.5E−05	9.7E−05	4.3E−07	6.7E−07
TOTAL ALL (BaP Approach):	4.5E−05	2.5E−06	2.5E−07	1.0E−06	7.3E−05	8.9E−04	1.2E−03	6.7E−05	5.0E−05	8.4E−03	1.5E−03	2.5E−04	3.5E−05	9.7E−05	4.3E−07	6.7E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29d
ILCRs FOR RME ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.1E−12	2.5E−11	8.9E−11	1.2E−10	2.8E−07	2.4E−06	3.3E−06	6.3E−08	NA	4.3E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.0E−09	5.9E−11	1.1E−12	3.9E−13	NA	NA	NA	NA	NA	NA	6.6E−06	1.2E−06	1.3E−08	4.6E−09	NA	NA
Pu_{238}	7.2E−08	2.6E−09	1.9E−13	1.5E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	8.4E−09	3.2E−10	6.0E−14	4.8E−14	4.0E−09	6.6E−11	5.3E−11	6.1E−07	NA	6.7E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.9E−07	1.6E−07	1.8E−08	1.3E−07	NA	NA	NA	NA	NA	NA	6.1E−04	1.1E−04	5.3E−06	3.9E−05	2.1E−06	NA
Ru_{106}	2.4E−11	3.2E−12	6.4E−13	8.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.7E−11	1.0E−10	1.8E−11	3.7E−10	1.2E−05	5.3E−06	1.1E−04	3.4E−07	NA	ND	2.4E−05	6.2E−06	6.5E−07	1.3E−05	NA	NA
Tc_{99}	1.9E−11	2.1E−11	3.4E−11	1.6E−10	NA	NA	NA	NA	NA	NA	4.3E−04	7.4E−05	7.5E−05	3.6E−04	NA	NA
Th_{230}	3.1E−06	8.9E−09	2.3E−11	7.5E−11	1.3E−09	1.4E−10	4.6E−10	1.0E−07	NA	4.0E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	7.7E−07	7.6E−09	1.9E−11	6.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	5.1E−06	2.0E−08	4.7E−10	5.6E−09	2.7E−07	3.6E−08	4.4E−07	4.7E−07	NA	8.3E−09	2.4E−03	3.7E−04	5.5E−06	6.8E−05	NA	NA
U_{235236}	3.8E−07	1.5E−09	3.6E−11	4.3E−10	3.3E−08	4.4E−09	5.2E−08	5.6E−08	NA	8.0E−06	1.1E−04	1.7E−05	2.5E−07	3.1E−06	NA	NA
U_{238+2d}	1.1E−05	3.7E−08	8.7E−10	1.0E−08	3.3E−07	4.4E−08	5.3E−07	5.8E−07	NA	7.0E−06	4.1E−03	6.3E−04	9.4E−06	1.2E−04	NA	NA
Rn_{222+4d}	1.2E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.2E−05	2.4E−07	2.0E−08	1.5E−07	1.3E−05	7.7E−06	1.1E−04	2.2E−06		5.8E−05	7.8E−03	1.2E−03	9.6E−05	6.0E−04	2.1E−06	
Chemicals																
arsenic	1.9E−08	2.0E−08	1.6E−08	1.9E−09	NA	NA	NA	NA	NA	NA	2.7E−04	6.0E−05	2.4E−05	2.9E−06	ND	8.3E−07
beryllium	1.3E−09	5.3E−09	2.5E−09	9.1E−12	3.2E−06	6.2E−06	2.2E−08	1.5E−05	1.5E−05	NA	1.4E−05	2.8E−06	4.7E−07	1.7E−09	ND	4.0E−06
cadmium	3.1E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.0E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.3E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.5E−17	2.8E−16	1.1E−19	1.4E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	9.3E−14	1.7E−14	3.8E−14	6.6E−09	2.8E−09	6.3E−09	1.8E−09	2.5E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.0E−13	2.3E−15	2.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−16	3.1E−16	6.8E−20	9.3E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−15	3.7E−14	7.2E−19	1.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.5E−14	9.8E−17	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	9.7E−13	4.7E−17	6.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.8E−10	1.7E−07	1.2E−09	1.6E−09	2.3E−08	2.1E−10	2.7E−10	3.8E−10	5.5E−09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.7E−09	1.3E−07	1.0E−10	1.3E−10	1.2E−08	1.1E−11	1.4E−11	5.4E−11	5.3E−10	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.3E−12	3.5E−12	4.5E−12	5.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.3E−11	2.5E−10	8.9E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.2E−12	3.2E−11	1.2E−10	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E−12	1.2E−11	2.4E−10	3.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.0E−14	2.4E−13	3.1E−13	4.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.9E−12	7.6E−11	1.5E−09	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.1E−12	4.6E−11	4.8E−10	6.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.1E−09	1.2E−08	1.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	8.2E−12	9.0E−10	1.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−13	1.6E−12	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	6.1E−14	8.9E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.6E−15	3.0E−14	2.8E−14	3.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E−13	7.0E−13	6.9E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.1E−14	3.6E−13	2.8E−10	4.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.2E−14	1.9E−13	2.2E−10	3.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.4E−07	3.3E−07	3.7E−08	2.5E−08	3.3E−06	6.2E−06	2.9E−08	1.5E−05	1.5E−05		2.9E−04	6.2E−05	2.5E−05	2.9E−06	0.0E+00	4.9E−06
Sum Chem (BaP for PAHs):	1.4E−07	3.3E−07	4.3E−08	3.3E−08	3.3E−06	6.2E−06	2.9E−08	1.5E−05	1.5E−05		2.9E−04	6.2E−05	2.5E−05	2.9E−06	0.0E+00	4.9E−06
TOTAL ALL (TEF Approach):	2.2E−05	5.7E−07	5.6E−08	1.7E−07	1.6E−05	1.4E−05	1.1E−04	1.7E−05	1.5E−05	5.8E−05	8.1E−03	1.3E−03	1.2E−04	6.0E−04	2.1E−06	4.9E−06
TOTAL ALL (BaP Approach):	2.2E−05	5.7E−07	6.3E−08	1.8E−07	1.6E−05	1.4E−05	1.1E−04	1.7E−05	1.5E−05	5.8E−05	8.1E−03	1.3E−03	1.2E−04	6.0E−04	2.1E−06	4.9E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29e
ILCRs FOR RME ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.1E−12	2.5E−11	9.1E−11	1.3E−10	4.1E−07	3.6E−06	5.0E−06	9.5E−08	NA	6.4E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.2E−09	7.0E−11	1.3E−12	4.6E−13	NA	NA	NA	NA	NA	NA	5.1E−06	9.3E−07	9.7E−09	3.6E−09	NA	NA
Pu_{238}	8.6E−08	3.1E−09	2.3E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	9.7E−09	3.7E−10	7.0E−14	5.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.6E−07	1.3E−07	1.5E−08	1.1E−07	NA	NA	NA	NA	NA	NA	5.2E−04	9.5E−05	4.5E−06	3.3E−05	1.8E−06	NA
Ru_{106}	3.9E−11	5.3E−12	1.1E−12	1.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.7E−11	9.7E−11	1.8E−11	3.5E−10	9.2E−06	4.0E−06	7.9E−05	2.5E−07	NA	ND	1.6E−05	4.1E−06	4.3E−07	8.7E−06	NA	NA
Tc_{99}	1.2E−11	1.3E−11	2.0E−11	9.5E−11	1.6E−06	1.3E−05	5.9E−05	7.5E−09	NA	3.2E−11	3.1E−04	5.2E−05	5.3E−05	2.6E−04	NA	NA
Th_{230}	3.2E−06	9.2E−09	2.3E−11	7.8E−11	1.6E−09	1.8E−10	6.0E−10	1.3E−07	NA	5.2E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	6.5E−07	6.5E−09	1.6E−11	5.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	5.4E−06	2.1E−08	5.0E−10	6.0E−09	7.9E−07	1.0E−07	1.3E−06	1.4E−06	NA	2.4E−08	1.7E−03	2.6E−04	3.8E−06	4.7E−05	NA	NA
$U_{235/236}$	4.3E−07	1.8E−09	4.1E−11	5.0E−10	1.0E−07	1.3E−08	1.6E−07	1.7E−07	NA	2.4E−05	7.7E−05	1.2E−05	1.7E−07	2.2E−06	NA	NA
U_{238+2d}	1.2E−05	4.2E−08	9.7E−10	1.2E−08	2.6E−06	3.4E−07	4.1E−06	4.4E−06	NA	5.4E−05	2.9E−03	4.4E−04	6.5E−06	8.1E−05	NA	NA
Rn_{222+4d}	9.4E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.3E−05	2.2E−07	1.7E−08	1.3E−07	1.5E−05	2.1E−05	1.5E−04	6.5E−06		1.4E−04	5.5E−03	8.6E−04	6.9E−05	4.3E−04	1.8E−06	
Chemicals																
arsenic	2.2E−08	2.3E−08	1.8E−08	2.2E−09	NA	NA	NA	NA	NA	NA	2.5E−04	5.4E−05	2.2E−05	2.6E−06	ND	7.4E−07
beryllium	1.3E−09	5.3E−09	2.5E−09	9.1E−12	3.9E−06	7.5E−06	2.7E−08	1.8E−05	1.8E−05	NA	1.3E−05	2.6E−06	4.5E−07	1.6E−09	ND	3.8E−06
cadmium	3.1E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	9.8E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	2.3E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.1E−17	2.4E−16	9.4E−20	1.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.5E−13	2.7E−14	6.2E−14	9.1E−08	3.9E−08	8.6E−08	2.4E−08	3.4E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.4E−13	1.5E−15	1.9E−15	1.8E−08	2.2E−10	2.8E−10	3.5E−10	3.7E−09	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.3E−16	2.0E−16	4.6E−20	6.2E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.4E−16	2.6E−14	5.0E−19	1.0E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.7E−14	1.1E−16	1.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	7.8E−13	3.8E−17	5.2E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	9.5E−10	2.1E−07	1.5E−09	1.9E−09	1.6E−08	1.4E−10	1.8E−10	2.6E−10	3.6E−09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.8E−09	1.6E−07	1.3E−10	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	4.2E−12	3.4E−12	4.3E−12	5.5E−12	5.4E−08	1.3E−07	1.7E−07	1.8E−08	1.8E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.1E−11	2.4E−10	8.4E−10	1.1E−09	1.8E−06	1.5E−05	2.0E−05	1.1E−06	1.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.9E−12	3.0E−11	1.1E−10	1.4E−10	2.4E−07	2.1E−06	2.7E−06	1.5E−07	1.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−12	9.9E−12	2.1E−10	2.6E−10	4.5E−08	3.7E−06	4.7E−06	7.2E−08	7.2E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	3.1E−14	2.5E−13	3.3E−13	4.1E−13	4.8E−09	1.2E−08	1.5E−08	1.6E−09	1.6E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.7E−12	6.6E−11	1.3E−09	1.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.9E−12	4.5E−11	4.7E−10	6.0E−10	2.2E−07	7.8E−06	9.9E−06	2.5E−07	2.5E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.0E−09	1.2E−08	1.5E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	6.6E−12	7.3E−10	9.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.1E−13	1.5E−12	1.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	6.1E−14	8.9E−14	1.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	5.1E−15	3.3E−14	3.1E−14	3.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.1E−13	7.8E−13	7.6E−14	9.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.8E−14	4.0E−13	3.1E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.5E−14	1.5E−13	1.7E−10	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.3E−07	4.0E−07	3.8E−08	2.4E−08	6.4E−06	3.7E−05	3.7E−05	2.0E−05	2.0E−05		2.6E−04	5.6E−05	2.2E−05	2.6E−06	0.0E+00	4.5E−06
Sum Chem (BaP for PAHs):	1.3E−07	4.0E−07	4.4E−08	3.2E−08	1.1E−05	1.4E−04	1.7E−04	2.3E−05	2.3E−05		2.6E−04	5.6E−05	2.2E−05	2.6E−06	0.0E+00	4.5E−06
TOTAL ALL (TEF Approach):	2.3E−05	6.2E−07	5.5E−08	1.5E−07	2.1E−05	5.7E−05	1.9E−04	2.6E−05	2.0E−05	1.4E−04	5.7E−03	9.1E−04	9.1E−05	4.3E−04	1.8E−06	4.5E−06
TOTAL ALL (BaP Approach):	2.3E−05	6.2E−07	6.1E−08	1.6E−07	2.6E−05	1.6E−04	3.2E−04	3.0E−05	2.3E−05	1.4E−04	5.7E−03	9.1E−04	9.1E−05	4.3E−04	1.8E−06	4.5E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29f
ILCRs FOR RME ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.9E−12	2.3E−11	8.3E−11	1.2E−10	5.9E−07	5.1E−06	7.1E−06	1.4E−07	NA	9.1E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−09	6.4E−11	1.2E−12	4.2E−13	1.5E−06	1.3E−07	4.8E−08	1.0E−06	NA	1.9E−05	2.7E−06	4.9E−07	5.2E−09	1.9E−09	NA	NA
Pu_{238}	2.2E−08	7.7E−10	5.7E−14	4.6E−14	1.9E−09	3.2E−11	2.5E−11	2.9E−07	NA	3.5E−10	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	4.8E−09	1.9E−10	3.5E−14	2.8E−14	2.0E−09	3.3E−11	2.6E−11	3.0E−07	NA	3.4E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.0E−07	1.7E−07	1.9E−08	1.4E−07	2.6E−05	1.6E−05	1.1E−04	1.2E−04	NA	8.6E−03	4.6E−04	8.3E−05	4.0E−06	2.9E−05	1.6E−06	NA
Ru_{106}	1.1E−10	1.5E−11	3.0E−12	3.7E−15	3.7E−07	4.1E−07	5.1E−10	1.3E−07	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−11	7.6E−11	1.4E−11	2.7E−10	8.6E−06	3.7E−06	7.4E−05	2.4E−07	NA	ND	5.9E−06	1.5E−06	1.6E−07	3.2E−06	NA	NA
Tc_{99}	8.8E−12	9.6E−12	1.5E−11	7.2E−11	1.5E−06	1.2E−05	5.5E−05	6.9E−09	NA	3.0E−11	2.1E−05	3.6E−06	3.6E−06	1.7E−05	NA	NA
Th_{230}	1.1E−06	3.2E−09	8.1E−12	2.7E−11	2.5E−08	2.8E−09	9.3E−09	2.0E−06	NA	8.0E−08	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.7E−07	2.7E−09	6.8E−12	2.3E−11	2.3E−08	2.6E−09	8.6E−09	1.9E−06	NA	9.0E−04	NA	NA	NA	NA	NA	NA
U_{234}	1.4E−06	5.7E−09	1.3E−10	1.6E−09	1.3E−06	1.8E−07	2.1E−06	2.3E−06	NA	4.1E−08	4.6E−05	6.9E−06	1.0E−07	1.3E−06	NA	NA
$U_{235/236}$	1.4E−07	5.6E−10	1.3E−11	1.6E−10	5.7E−08	7.6E−09	9.1E−08	9.9E−08	NA	1.4E−05	2.1E−06	3.2E−07	4.7E−09	5.8E−08	NA	NA
U_{238+2d}	3.4E−06	1.2E−08	2.8E−10	3.3E−09	5.1E−06	6.8E−07	8.2E−06	8.8E−06	NA	1.1E−04	7.8E−05	1.2E−05	1.8E−07	2.2E−06	NA	NA
Rn_{222+4d}	2.9E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	9.6E−06	1.9E−07	1.9E−08	1.4E−07	4.5E−05	3.7E−05	2.6E−04	1.4E−04		9.8E−03	6.1E−04	1.1E−04	8.0E−06	5.3E−05	1.6E−06	
Chemicals																
arsenic	6.8E−08	6.9E−08	5.5E−08	6.7E−09	3.8E−05	9.0E−05	1.1E−05	4.3E−05	1.5E−06	NA	8.2E−05	1.8E−05	7.2E−06	8.7E−07	ND	2.5E−07
beryllium	2.0E−09	8.0E−09	3.8E−09	1.4E−11	1.7E−06	3.3E−06	1.2E−08	7.9E−06	7.9E−06	NA	3.0E−06	6.0E−07	1.0E−07	3.7E−10	ND	8.7E−07
cadmium	9.0E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.9E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	5.3E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.8E−17	3.2E−16	1.3E−19	1.7E−19	7.0E−08	3.3E−11	4.2E−11	2.1E−10	3.8E−12	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	8.4E−14	1.5E−14	3.4E−14	4.8E−07	2.0E−07	4.6E−07	1.3E−07	1.8E−08	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.4E−13	1.5E−15	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.9E−16	2.4E−16	5.5E−20	7.4E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−15	3.7E−14	7.2E−19	1.4E−18	4.4E−07	1.2E−11	2.4E−11	5.2E−10	5.0E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	5.9E−14	3.9E−16	5.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.1E−12	5.4E−17	7.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.5E−09	1.4E−06	1.0E−08	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.8E−08	1.0E−06	8.3E−10	1.1E−09	3.7E−08	3.3E−11	4.2E−11	1.6E−10	1.6E−09	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.8E−12	3.1E−12	4.0E−12	5.1E−12	1.1E−06	2.6E−06	3.3E−06	3.5E−07	3.5E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.0E−11	2.3E−10	8.0E−10	1.0E−09	2.9E−05	2.5E−04	3.1E−04	1.8E−05	1.8E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.6E−12	2.8E−11	1.0E−10	1.3E−10	8.7E−06	7.7E−05	9.8E−05	5.3E−06	5.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E−12	1.2E−11	2.4E−10	3.0E−10	3.6E−08	3.0E−06	3.7E−06	5.7E−08	5.7E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.6E−14	2.1E−13	2.7E−13	3.4E−13	5.9E−08	1.4E−07	1.8E−07	2.0E−08	2.0E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.3E−12	6.3E−11	1.2E−09	1.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.2E−12	3.9E−11	4.1E−10	5.2E−10	1.7E−07	6.3E−06	8.0E−06	2.0E−07	2.0E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.1E−09	6.2E−09	7.8E−09	4.9E−07	3.4E−06	4.3E−06	2.7E−07	6.8E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	9.2E−12	1.0E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.0E−13	1.4E−12	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.3E−14	3.4E−14	4.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	1.0E−14	6.5E−14	6.0E−14	7.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.1E−14	6.2E−13	6.1E−14	7.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.1E−13	1.3E−12	9.7E−10	1.4E−09	1.9E−08	6.3E−04	9.0E−04	3.3E−07	6.4E−07	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.7E−14	2.2E−13	2.5E−10	3.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.2E−07	2.6E−06	8.2E−08	3.5E−08	8.0E−05	1.1E−03	1.3E−03	7.5E−05	3.4E−05		8.5E−05	1.8E−05	7.3E−06	8.7E−07	0.0E+00	1.1E−06
Sum Chem (BaP for PAHs):	3.2E−07	2.6E−06	8.8E−08	4.3E−08	1.6E−04	1.7E−03	2.2E−03	1.2E−04	8.0E−05		8.5E−05	1.8E−05	7.3E−06	8.7E−07	0.0E+00	1.1E−06
TOTAL ALL (TEF Approach):	9.9E−06	2.7E−06	1.0E−07	1.8E−07	1.3E−04	1.1E−03	1.6E−03	2.1E−04	3.4E−05	9.8E−03	7.0E−04	1.3E−04	1.5E−05	5.4E−05	1.6E−06	1.1E−06
TOTAL ALL (BaP Approach):	9.9E−06	2.7E−06	1.1E−07	1.8E−07	2.1E−04	1.8E−03	2.5E−03	2.6E−04	8.0E−05	9.8E−03	7.0E−04	1.3E−04	1.5E−05	5.4E−05	1.6E−06	1.1E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–29g
ILCRs FOR RME ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.2E−12	2.6E−11	9.4E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.1E−09	6.2E−11	1.1E−12	4.1E−13	NA	NA	NA	NA	NA	NA	6.6E−06	1.2E−06	1.3E−08	4.6E−09	NA	NA
Pu_{238}	6.8E−08	2.4E−09	1.8E−13	1.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.4E−09	3.2E−10	6.0E−14	4.8E−14	1.1E−08	1.9E−10	1.5E−10	1.7E−06	NA	1.9E−09	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.1E−04	1.1E−04	5.3E−06	3.9E−05	2.1E−06	NA
Ru_{106}	2.7E−11	3.6E−12	7.2E−13	9.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.2E−11	1.3E−10	2.4E−11	4.7E−10	9.7E−06	4.2E−06	8.3E−05	2.7E−07	NA	ND	2.4E−05	6.2E−06	6.5E−07	1.3E−05	NA	NA
Tc_{99}	3.6E−11	3.9E−11	6.2E−11	2.9E−10	NA	NA	NA	NA	NA	NA	4.3E−04	7.4E−05	7.5E−05	3.6E−04	NA	NA
Th_{230}	4.0E−06	1.2E−08	2.9E−11	9.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	5.4E−06	2.1E−08	5.0E−10	6.0E−09	1.5E−07	2.0E−08	2.4E−07	2.6E−07	NA	4.5E−09	2.4E−03	3.7E−04	5.5E−06	6.8E−05	NA	NA
$U_{235/236}$	4.1E−07	1.7E−09	3.9E−11	4.6E−10	3.3E−08	4.4E−09	5.3E−08	5.7E−08	NA	8.1E−06	1.1E−04	1.7E−05	2.5E−07	3.1E−06	NA	NA
U_{238+2d}	1.1E−05	3.7E−08	8.7E−10	1.0E−08	1.9E−07	2.6E−08	3.1E−07	3.3E−07	NA	4.0E−06	4.1E−03	6.3E−04	9.4E−06	1.2E−04	NA	NA
Rn_{222+4d}	1.8E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	2.3E−05	7.5E−08	1.6E−09	1.8E−08	1.0E−05	4.2E−06	8.4E−05	2.6E−06		1.2E−05	7.8E−03	1.2E−03	9.6E−05	6.0E−04	2.1E−06	
Chemicals																
arsenic	2.9E−08	2.9E−08	2.4E−08	2.9E−09	5.0E−05	1.2E−04	1.4E−05	5.7E−05	1.9E−06	NA	2.7E−04	6.0E−05	2.4E−05	2.9E−06	ND	8.3E−07
beryllium	1.7E−09	7.1E−09	3.4E−09	1.2E−11	1.7E−06	3.2E−06	1.2E−08	7.7E−06	7.7E−06	NA	1.4E−05	2.8E−06	4.7E−07	1.7E−09	ND	4.0E−06
cadmium	4.9E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	3.4E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	3.2E−17	3.6E−16	1.5E−19	1.9E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.0E−13	1.9E−14	4.2E−14	8.0E−09	3.4E−09	7.6E−09	2.1E−09	3.0E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.8E−13	3.1E−15	3.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	5.8E−16	3.6E−16	8.0E−20	1.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−15	4.8E−14	9.4E−19	1.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.6E−14	1.1E−16	1.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.2E−12	5.8E−17	7.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.3E−10	1.8E−07	1.3E−09	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	5.1E−09	1.4E−07	1.1E−10	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.9E−11	3.0E−10	1.1E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.9E−12	3.8E−11	1.4E−10	1.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.8E−12	1.4E−11	2.9E−10	3.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	3.4E−14	2.8E−13	3.6E−13	4.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.2E−11	9.4E−11	1.8E−09	2.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	7.1E−12	5.3E−11	5.6E−10	7.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.1E−09	1.2E−08	1.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.0E−11	1.1E−09	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.2E−13	1.7E−12	2.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	5.6E−14	8.3E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.6E−15	3.0E−14	2.8E−14	3.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.0E−13	7.0E−13	6.9E−14	8.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.8E−14	4.0E−13	3.1E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.0E−14	2.4E−13	2.7E−10	3.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.0E−07	3.6E−07	4.7E−08	2.8E−08	5.2E−05	1.2E−04	1.4E−05	6.5E−05	9.7E−06		2.9E−04	6.2E−05	2.5E−05	2.9E−06	0.0E+00	4.9E−06
Sum Chem (BaP for PAHs):	2.0E−07	3.6E−07	5.4E−08	3.7E−08	5.2E−05	1.2E−04	1.4E−05	6.5E−05	9.7E−06		2.9E−04	6.2E−05	2.5E−05	2.9E−06	0.0E+00	4.9E−06
TOTAL ALL (TEF Approach):	2.3E−05	4.3E−07	4.8E−08	4.5E−08	6.2E−05	1.3E−04	9.8E−05	6.8E−05	9.7E−06	1.2E−05	8.1E−03	1.3E−03	1.2E−04	6.0E−04	2.1E−06	4.9E−06
TOTAL ALL (BaP Approach):	2.3E−05	4.4E−07	5.6E−08	5.5E−08	6.2E−05	1.3E−04	9.8E−05	6.8E−05	9.7E−06	1.2E−05	8.1E−03	1.3E−03	1.2E−04	6.0E−04	2.1E−06	4.9E−06

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30a
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.8E–07	1.3E–12	1.6E–12	3.7E–01	3.0E–06	3.8E–06	1.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	5.5E–04	4.0E–04	1.6E–04	6.3E–01	6.4E–01	2.5E–01	1.5E–01	3.1E–01	NA	2.5E+00	1.4E+00	5.4E–01	2.1E–01	ND	4.8E–02
arsenic	ND	1.4E–04	1.1E–04	1.3E–05	7.8E–02	1.9E–01	2.2E–02	8.9E–02	3.0E–03	NA	8.8E–01	1.9E–01	7.8E–02	9.4E–03	ND	2.7E–03
barium	5.9E–04	2.7E–05	4.5E–06	4.2E–05	1.8E–02	4.1E–03	3.8E–02	8.2E–03	2.9E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	8.2E–07	3.9E–07	1.4E–09	1.3E–04	2.5E–04	8.8E–07	5.9E–04	1.9E–02	NA	2.3E–07	4.6E–08	7.9E–09	2.9E–11	ND	6.7E–08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.4E–04	6.7E–05	4.9E–04	2.8E–01	8.3E–02	6.1E–01	1.3E–02	8.3E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.2E–05	3.8E–05	4.1E–05	8.8E–03	2.7E–02	3.0E–02	1.4E–02	9.6E–03	NA	1.6E–03	4.9E–04	2.6E–04	2.9E–04	ND	2.1E–05
cobalt	1.6E–02	9.7E–07	6.7E–06	2.7E–06	5.0E–04	6.1E–03	2.5E–03	4.9E–04	3.5E–04	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.1E–05	6.9E–05	4.1E–05	1.0E–01	2.4E–01	1.5E–01	2.9E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.5E–05	1.3E–05	4.1E–05	8.3E–02	1.1E–01	3.5E–01	1.0E–03	6.7E–03	NA	1.2E+00	3.5E–01	1.8E–01	5.7E–01	ND	6.6E–02
manganese	3.1E–02	7.7E–05	1.8E–05	6.3E–05	7.4E–02	2.2E–02	7.7E–02	1.0E–02	1.1E–01	NA	4.7E–01	3.1E–01	3.7E–02	1.3E–01	ND	4.5E–02
mercury	3.3E–06	9.8E–06	7.9E–04	5.7E–06	1.6E–01	2.6E+01	1.9E–01	5.5E–03	5.8E–02	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.4E–05	3.7E–05	3.7E–05	3.3E–02	1.2E–01	1.2E–01	3.7E–03	3.2E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.2E–05	3.1E–05	2.1E–05	2.7E–02	2.8E–02	1.8E–02	3.2E–03	5.0E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.6E–06	9.7E–06	1.0E–05	1.6E–03	4.7E–03	5.0E–03	4.3E–04	1.7E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.5E–05	5.5E–05	1.5E–03	3.4E–02	6.0E–02	1.6E+00	2.3E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.5E–05	2.5E–04	5.1E–05	9.3E–04	1.9E–01	3.8E–02	1.6E–02	5.1E–03	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	2.9E–03	6.6E–05	8.0E–04	4.4E–01	5.8E–02	7.0E–01	7.6E–01	4.8E+00	NA	2.5E+01	3.8E+00	5.7E–02	7.1E–01	ND	1.4E+00
vanadium	ND	1.6E–05	1.2E–05	3.9E–07	4.2E–03	7.8E–03	2.5E–04	9.6E–03	6.2E–03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.4E–04	5.7E–03	2.3E–03	1.5E–01	3.6E+00	1.5E+00	1.2E–03	1.5E–03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	1.3E–09	2.4E–10	5.4E–10	1.3E–04	5.6E–05	1.3E–04	3.5E–05	5.0E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.7E–11	6.1E–15	8.2E–15	8.9E–04	2.5E–07	3.4E–07	2.3E–06	2.2E–05	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	3.5E–04	1.4E–07	1.9E–07	1.1E–06	1.2E–05	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.3E–03	4.8E–04	6.1E–04	1.7E–04	3.7E–03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E–12	4.1E–10	8.0E–15	1.6E–14	6.2E–04	1.7E–08	3.4E–08	7.3E–07	7.0E–06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	9.7E–04	6.6E–04	8.4E–04	1.7E–04	3.8E–03	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.3E–03	9.1E–06	1.2E–05	3.3E–04	3.0E–06	3.8E–06	5.4E–06	7.7E–05	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	3.7E–09	5.2E–08	6.5E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	5.3E–09	5.2E–10	6.7E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.8E–02	5.6E–03	7.7E–03	5.6E–03	2.5E+00	3.1E+01	5.7E+00	1.1E+00	5.5E+00		3.0E+01	6.1E+00	8.9E–01	1.6E+00	0.0E+00	1.6E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30b
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	3.5E–08	2.5E–13	3.2E–13	2.3E–01	1.9E–06	2.4E–06	6.5E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.3E–04	9.7E–05	3.9E–05	8.6E–02	8.6E–02	3.5E–02	2.0E–02	4.2E–02	NA	1.5E–02	8.5E–03	3.1E–03	1.3E–03	ND	2.8E–04
arsenic	ND	3.6E–05	2.9E–05	3.4E–06	NA	NA	NA	NA	NA	NA	1.2E–01	2.7E–02	1.1E–02	1.3E–03	ND	3.8E–04
barium	9.5E–05	4.3E–06	7.2E–07	6.7E–06	7.7E–03	1.8E–03	1.7E–02	3.6E–03	1.2E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.1E–07	9.8E–08	3.5E–10	1.7E–04	3.3E–04	1.2E–06	7.9E–04	2.5E–02	NA	2.1E–18	4.2E–19	7.2E–20	2.6E–22	ND	6.1E–19
boron	NA	NA	NA	NA	1.1E–01	2.6E–02	2.0E–01	3.9E–04	2.5E–03	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	8.6E–05	2.4E–05	1.8E–04	9.1E–02	2.7E–02	2.0E–01	4.2E–03	2.7E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.4E–06	9.2E–06	1.0E–05	4.6E–03	1.4E–02	1.5E–02	7.0E–03	5.0E–03	NA	3.2E–05	9.6E–06	5.1E–06	5.6E–06	ND	4.1E–07
cobalt	4.8E–03	2.8E–07	1.9E–06	7.8E–07	5.0E–04	6.2E–03	2.5E–03	4.9E–04	3.5E–04	NA	NA	NA	NA	NA	NA	NA
copper	ND	6.3E–06	1.4E–05	8.5E–06	4.0E–02	9.3E–02	5.6E–02	1.1E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	4.8E–06	4.3E–06	1.4E–05	3.6E–01	4.7E–01	1.5E+00	4.5E–03	2.9E–02	NA	5.7E–01	1.7E–01	8.8E–02	2.9E–01	ND	3.3E–02
manganese	8.2E–03	2.0E–05	4.7E–06	1.6E–05	1.2E–01	3.6E–02	1.3E–01	1.7E–02	1.8E–01	NA	8.4E–02	5.6E–02	6.7E–03	2.3E–02	ND	8.0E–03
mercury	2.6E–07	7.6E–07	6.2E–05	4.4E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.6E–06	9.3E–06	9.3E–06	5.0E–02	1.9E–01	1.9E–01	5.8E–03	4.9E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	9.4E–06	9.1E–06	6.0E–06	1.8E–02	1.8E–02	1.2E–02	2.1E–03	3.3E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	6.8E–07	1.8E–06	2.0E–06	1.4E–03	4.2E–03	4.4E–03	3.8E–04	1.5E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	9.8E–06	1.5E–05	4.0E–04	2.8E–02	4.9E–02	1.3E+00	1.9E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	5.5E–06	9.5E–05	1.9E–05	1.4E–03	2.8E–01	5.5E–02	2.4E–02	7.5E–03	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	1.9E–04	4.5E–06	5.4E–05	7.1E–03	9.4E–04	1.1E–02	1.2E–02	7.8E–02	NA	5.8E–02	8.8E–03	1.3E–04	1.6E–03	ND	3.3E–03
vanadium	ND	4.1E–06	3.2E–06	1.0E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.5E–04	3.6E–03	1.5E–03	7.3E–02	1.8E+00	7.0E–01	5.6E–04	7.2E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.2E–10	5.8E–11	1.3E–10	2.7E–04	1.2E–04	2.6E–04	7.3E–05	1.0E–05	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.9E–12	1.3E–15	1.8E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	7.6E–05	2.8E–05	3.6E–05	9.9E–06	2.2E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E–13	2.6E–11	5.1E–16	1.0E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	6.1E–05	4.1E–05	5.2E–05	1.1E–05	2.4E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	6.1E–03	4.4E–05	5.6E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	7.0E–10	9.8E–09	1.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.5E–10	4.4E–11	5.7E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.3E–02	6.7E–03	4.1E–03	2.3E–03	1.2E+00	3.1E+00	4.4E+00	1.1E–01	4.0E–01		8.5E–01	2.7E–01	1.1E–01	3.1E–01	0.0E+00	4.5E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-30c
HAZARD QUOTIENTS FOR RME ON-PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.0E-07	7.2E-13	9.1E-13	2.3E-01	1.9E-06	2.4E-06	6.6E-05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.9E-04	1.4E-04	5.6E-05	1.4E-01	1.4E-01	5.5E-02	3.2E-02	6.7E-02	NA	2.8E+00	1.6E+00	5.9E-01	2.3E-01	ND	5.3E-02
arsenic	ND	6.7E-05	5.4E-05	6.5E-06	NA	NA	NA	NA	NA	NA	4.2E-01	9.3E-02	3.7E-02	4.5E-03	ND	1.3E-03
barium	2.3E-04	1.0E-05	1.7E-06	1.6E-05	1.0E-02	2.4E-03	2.2E-02	4.7E-03	1.7E-03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	4.6E-07	2.2E-07	7.8E-10	1.0E-04	2.0E-04	7.2E-07	4.8E-04	1.5E-02	NA	8.8E-12	1.7E-12	3.0E-13	1.1E-15	ND	2.5E-12
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.4E-04	4.1E-05	2.9E-04	1.3E-01	3.8E-02	2.7E-01	5.9E-03	3.7E-02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.2E-05	2.0E-05	2.1E-05	5.0E-03	1.5E-02	1.7E-02	7.7E-03	5.5E-03	NA	7.1E-04	2.1E-04	1.1E-04	1.2E-04	ND	9.0E-06
cobalt	8.4E-03	5.0E-07	3.4E-06	1.4E-06	6.0E-04	7.4E-03	2.9E-03	5.9E-04	4.2E-04	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.0E-05	4.4E-05	2.7E-05	4.9E-02	1.1E-01	6.9E-02	1.3E-03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	9.0E-06	8.0E-06	2.6E-05	1.0E+00	1.3E+00	4.3E+00	1.3E-02	8.1E-02	NA	7.1E-01	2.1E-01	1.1E-01	3.6E-01	ND	4.1E-02
manganese	1.7E-02	4.2E-05	9.8E-06	3.4E-05	2.3E-01	7.0E-02	2.4E-01	3.2E-02	3.4E-01	NA	1.6E-01	1.1E-01	1.3E-02	4.5E-02	ND	1.5E-02
mercury	1.1E-06	3.2E-06	2.6E-04	1.9E-06	2.9E-02	4.7E+00	3.4E-02	9.9E-04	1.1E-02	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	7.5E-06	2.0E-05	2.0E-05	4.8E-02	1.8E-01	1.8E-01	5.6E-03	4.7E-03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.7E-05	1.7E-05	1.1E-05	2.2E-02	2.2E-02	1.5E-02	2.5E-03	4.0E-04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.1E-06	3.0E-06	3.2E-06	9.5E-04	2.9E-03	3.1E-03	2.6E-04	1.0E-04	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.5E-05	2.4E-05	6.4E-04	9.3E-03	1.6E-02	4.4E-01	6.4E-04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	8.9E-06	1.5E-04	3.1E-05	1.4E-03	2.9E-01	5.8E-02	2.5E-02	8.0E-03	NA	NA	NA	NA	NA	NA	NA
uranium-total	ND	7.9E-04	1.8E-05	2.2E-04	1.1E-01	1.5E-02	1.8E-01	2.0E-01	1.3E+00	NA	1.3E+01	2.0E+00	3.0E-02	3.8E-01	ND	7.7E-01
vanadium	ND	8.0E-06	6.3E-06	2.0E-07	4.8E-03	8.8E-03	2.8E-04	1.1E-02	7.0E-03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.3E-04	5.4E-03	2.2E-03	3.3E-01	7.9E+00	3.2E+00	2.5E-03	3.2E-03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-09	2.3E-10	5.2E-10	4.4E-05	1.9E-05	4.2E-05	1.2E-05	1.7E-06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.8E-11	6.3E-15	8.6E-15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	2.3E-04	8.8E-05	1.1E-04	3.0E-05	6.8E-04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.1E-12	5.0E-10	9.8E-15	2.0E-14	1.1E-03	3.1E-08	6.2E-08	1.3E-06	1.3E-05	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.8E-04	2.6E-04	3.3E-04	6.6E-05	1.5E-03	NA	NA	NA	NA	NA	NA	NA
2-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.4E-03	9.9E-06	1.3E-05	2.6E-04	2.4E-06	3.0E-06	4.4E-06	6.2E-05	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4-ddt	ND	2.7E-09	3.8E-08	4.8E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.1E-09	1.1E-10	1.4E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.6E-02	2.9E-03	6.3E-03	3.6E-03	2.4E+00	1.5E+01	9.0E+00	3.4E-01	1.8E+00		1.7E+01	4.0E+00	7.8E-01	1.0E+00	0.0E+00	8.8E-01

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30d
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	5.9E–08	4.2E–13	5.3E–13	2.6E–01	2.1E–06	2.6E–06	7.3E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.0E–04	7.5E–05	3.0E–05	2.8E–01	2.9E–01	1.1E–01	6.5E–02	1.4E–01	NA	2.0E–01	1.1E–01	4.2E–02	1.7E–02	ND	3.8E–03
arsenic	ND	3.7E–05	3.0E–05	3.6E–06	NA	NA	NA	NA	NA	NA	5.2E–01	1.1E–01	4.6E–02	5.6E–03	ND	1.6E–03
barium	1.3E–04	5.9E–06	9.9E–07	9.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.5E–07	1.2E–07	4.2E–10	1.5E–04	2.9E–04	1.0E–06	6.9E–04	2.2E–02	NA	6.5E–04	1.3E–04	2.2E–05	8.0E–08	ND	1.9E–04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.0E–05	1.7E–05	1.2E–04	1.5E–01	4.4E–02	3.2E–01	6.9E–03	4.4E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.6E–06	9.4E–06	1.0E–05	4.3E–03	1.3E–02	1.4E–02	6.6E–03	4.7E–03	NA	5.9E–02	1.7E–02	9.2E–03	1.0E–02	ND	7.5E–04
cobalt	4.3E–03	2.6E–07	1.8E–06	7.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	9.7E–06	2.2E–05	1.3E–05	3.3E–02	7.7E–02	4.6E–02	9.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	4.6E–06	4.1E–06	1.3E–05	3.6E–01	4.7E–01	1.5E+00	4.5E–03	2.9E–02	NA	3.8E+00	1.1E+00	5.9E–01	1.9E+00	ND	2.2E–01
manganese	9.1E–03	2.2E–05	5.2E–06	1.8E–05	NA	NA	NA	NA	NA	NA	2.6E–01	1.8E–01	2.1E–02	7.4E–02	ND	2.5E–02
mercury	6.0E–07	1.8E–06	1.4E–04	1.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.3E–06	8.7E–06	8.7E–06	3.5E–02	1.3E–01	1.3E–01	4.0E–03	3.4E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	8.1E–06	7.8E–06	5.2E–06	1.6E–02	1.6E–02	1.1E–02	1.8E–03	3.0E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	6.8E–07	1.8E–06	2.0E–06	1.4E–03	4.3E–03	4.6E–03	3.9E–04	1.6E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.1E–06	1.3E–05	3.4E–04	6.2E–02	1.1E–01	2.9E+00	4.3E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.4E–06	5.8E–05	1.2E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	7.1E–04	1.6E–05	2.0E–04	6.7E–03	8.9E–04	1.1E–02	1.2E–02	7.4E–02	NA	8.3E+01	1.3E+01	1.9E–01	2.3E+00	ND	4.8E+00
vanadium	ND	4.2E–06	3.3E–06	1.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	5.7E–05	1.4E–03	5.5E–04	6.7E–02	1.6E+00	6.4E–01	5.1E–04	6.5E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.3E–10	6.1E–11	1.4E–10	2.4E–05	1.0E–05	2.2E–05	6.3E–06	8.9E–07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.0E–12	1.1E–15	1.5E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.8E–13	8.1E–11	1.6E–15	3.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.8E–05	1.9E–05	2.4E–05	4.8E–06	1.1E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	3.3E–04	2.4E–06	3.1E–06	4.5E–05	4.1E–07	5.2E–07	7.4E–07	1.1E–05	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	6.8E–10	9.5E–09	1.2E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	8.8E–10	8.7E–11	1.1E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.4E–02	1.4E–03	1.8E–03	1.3E–03	1.3E+00	2.8E+00	5.7E+00	1.1E–01	3.2E–01		8.8E+01	1.4E+01	8.9E–01	4.3E+00	0.0E+00	5.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30e
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.3E–08	3.1E–13	3.9E–13	1.9E–01	1.5E–06	2.0E–06	5.4E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.2E–04	9.0E–05	3.6E–05	NA	NA	NA	NA	NA	NA	8.4E–01	4.8E–01	1.8E–01	7.1E–02	ND	1.6E–02
arsenic	ND	4.3E–05	3.5E–05	4.2E–06	NA	NA	NA	NA	NA	NA	4.7E–01	1.0E–01	4.1E–02	5.0E–03	ND	1.4E–03
barium	1.4E–04	6.3E–06	1.1E–06	9.9E–06	7.6E–03	1.7E–03	1.6E–02	3.5E–03	1.2E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.5E–07	1.2E–07	4.2E–10	1.8E–04	3.5E–04	1.3E–06	8.4E–04	2.7E–02	NA	6.1E–04	1.2E–04	2.1E–05	7.6E–08	ND	1.8E–04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.0E–05	1.7E–05	1.2E–04	7.0E–02	2.1E–02	1.5E–01	3.2E–03	2.0E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.3E–06	8.9E–06	9.8E–06	NA	NA	NA	NA	NA	NA	4.6E–02	1.4E–02	7.2E–03	8.0E–03	ND	5.8E–04
cobalt	4.3E–03	2.6E–07	1.8E–06	7.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	6.7E–06	1.5E–05	9.0E–06	3.3E–02	7.8E–02	4.7E–02	9.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.9E–06	3.5E–06	1.1E–05	NA	NA	NA	NA	NA	NA	2.4E+00	7.3E–01	3.7E–01	1.2E+00	ND	1.4E–01
manganese	9.5E–03	2.3E–05	5.4E–06	1.9E–05	1.6E–01	4.7E–02	1.7E–01	2.2E–02	2.3E–01	NA	2.3E–01	1.6E–01	1.8E–02	6.5E–02	ND	2.2E–02
mercury	6.7E–07	2.0E–06	1.6E–04	1.1E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.1E–06	8.1E–06	8.1E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	8.1E–06	7.8E–06	5.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	8.3E–07	2.2E–06	2.4E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.1E–06	1.3E–05	3.4E–04	3.4E–03	6.1E–03	1.6E–01	2.4E–04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.6E–06	6.2E–05	1.2E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	8.0E–04	1.9E–05	2.2E–04	4.5E–02	6.0E–03	7.3E–02	7.8E–02	5.0E–01	NA	5.7E+01	8.7E+00	1.3E–01	1.6E+00	ND	3.3E+00
vanadium	ND	4.1E–06	3.2E–06	1.0E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	5.4E–05	1.3E–03	5.2E–04	9.1E–02	2.2E+00	8.8E–01	7.0E–04	8.9E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	5.4E–10	9.8E–11	2.2E–10	3.2E–04	1.4E–04	3.1E–04	8.6E–05	1.2E–05	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	3.4E–12	7.5E–16	1.0E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	9.0E–05	3.4E–05	4.3E–05	1.2E–05	2.6E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.9E–13	5.6E–11	1.1E–15	2.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	7.0E–05	4.8E–05	6.1E–05	1.2E–05	2.7E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	4.0E–04	2.9E–06	3.7E–06	3.0E–05	2.7E–07	3.5E–07	4.9E–07	7.0E–06	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	6.3E–10	8.8E–09	1.1E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	9.7E–10	9.5E–11	1.2E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.4E–02	1.6E–03	1.8E–03	1.3E–03	6.0E–01	2.4E+00	1.5E+00	1.1E–01	7.8E–01		6.1E+01	1.0E+01	7.5E–01	3.0E+00	0.0E+00	3.5E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30f
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	5.4E–08	3.9E–13	4.9E–13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	3.7E–04	2.7E–04	1.1E–04	8.1E–01	8.1E–01	3.3E–01	1.9E–01	4.0E–01	NA	3.2E+00	1.8E+00	6.7E–01	2.7E–01	ND	6.1E–02
arsenic	ND	1.3E–04	1.1E–04	1.3E–05	7.2E–02	1.7E–01	2.1E–02	8.2E–02	2.8E–03	NA	1.6E–01	3.4E–02	1.4E–02	1.7E–03	ND	4.7E–04
barium	1.8E–04	8.1E–06	1.4E–06	1.3E–05	5.4E–03	1.2E–03	1.2E–02	2.5E–03	8.7E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.7E–07	1.8E–07	6.4E–10	8.0E–05	1.5E–04	5.5E–07	3.7E–04	1.2E–02	NA	1.4E–04	2.8E–05	4.8E–06	1.7E–08	ND	4.0E–05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.7E–04	4.9E–05	3.5E–04	3.1E–01	9.2E–02	6.7E–01	1.4E–02	9.1E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	1.0E–05	1.8E–05	1.9E–05	5.0E–03	1.5E–02	1.7E–02	7.6E–03	5.4E–03	NA	6.7E–03	2.0E–03	1.1E–03	1.2E–03	ND	8.5E–05
cobalt	8.6E–03	5.1E–07	3.5E–06	1.4E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.1E–05	2.5E–05	1.5E–05	4.5E–02	1.1E–01	6.4E–02	1.2E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	6.7E–06	6.0E–06	1.9E–05	NA	NA	NA	NA	NA	NA	4.7E–01	1.4E–01	7.2E–02	2.3E–01	ND	2.7E–02
manganese	2.0E–02	5.0E–05	1.2E–05	4.1E–05	NA	NA	NA	NA	NA	NA	1.9E–01	1.3E–01	1.5E–02	5.4E–02	ND	1.8E–02
mercury	5.4E–07	1.6E–06	1.3E–04	9.2E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	4.7E–06	1.2E–05	1.2E–05	2.2E–02	8.3E–02	8.3E–02	2.6E–03	2.2E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.8E–05	1.8E–05	1.2E–05	2.4E–02	2.4E–02	1.6E–02	2.8E–03	4.4E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.2E–06	3.4E–06	3.6E–06	1.5E–03	4.5E–03	4.8E–03	4.1E–04	1.7E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	2.0E–05	3.1E–05	8.3E–04	3.2E–02	5.7E–02	1.5E+00	2.2E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.0E–05	1.7E–04	3.5E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	2.4E–04	5.5E–06	6.6E–05	3.8E–02	5.1E–03	6.1E–02	6.6E–02	4.2E–01	NA	1.6E+00	2.4E–01	3.5E–03	4.4E–02	ND	8.9E–02
vanadium	ND	7.9E–06	6.2E–06	2.0E–07	3.7E–03	6.9E–03	2.2E–04	8.6E–03	5.5E–03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	8.8E–05	2.1E–03	8.4E–04	8.5E–02	2.1E+00	8.2E–01	6.5E–04	8.3E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.0E–10	5.5E–11	1.2E–10	1.7E–03	7.3E–04	1.6E–03	4.6E–04	6.5E–05	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	4.0E–12	8.9E–16	1.2E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.2E–03	4.5E–04	5.7E–04	1.5E–04	3.4E–03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.8E–13	8.1E–11	1.6E–15	3.2E–15	9.7E–04	2.6E–08	5.3E–08	1.1E–06	1.1E–05	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.3E–03	8.6E–04	1.1E–03	2.2E–04	4.9E–03	NA	NA	NA	NA	NA	NA	NA
2–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.8E–03	2.0E–05	2.6E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	6.1E–10	8.5E–09	1.1E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	7.8E–10	7.6E–11	9.8E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.9E–02	3.9E–03	3.0E–03	2.4E–03	1.5E+00	3.4E+00	3.6E+00	3.8E–01	9.5E–01		5.6E+00	2.4E+00	7.8E–01	6.0E–01	0.0E+00	2.0E–01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–30g
HAZARD QUOTIENTS FOR RME ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.0E–07	7.5E–13	9.5E–13	8.6E–01	7.0E–06	8.8E–06	2.5E–04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.5E–04	1.1E–04	4.5E–05	1.1E–01	1.1E–01	4.4E–02	2.5E–02	5.4E–02	NA	2.0E–01	1.1E–01	4.2E–02	1.7E–02	ND	3.8E–03
arsenic	ND	5.6E–05	4.5E–05	5.4E–06	9.5E–02	2.3E–01	2.7E–02	1.1E–01	3.7E–03	NA	5.2E–01	1.1E–01	4.6E–02	5.6E–03	ND	1.6E–03
barium	1.8E–04	7.9E–06	1.3E–06	1.2E–05	6.8E–03	1.6E–03	1.5E–02	3.1E–03	1.1E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.3E–07	1.6E–07	5.7E–10	7.8E–05	1.5E–04	5.4E–07	3.6E–04	1.1E–02	NA	6.5E–04	1.3E–04	2.2E–05	8.0E–08	ND	1.9E–04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	9.4E–05	2.7E–05	1.9E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	8.4E–06	1.4E–05	1.5E–05	1.4E–02	4.2E–02	4.6E–02	2.1E–02	1.5E–02	NA	5.9E–02	1.7E–02	9.2E–03	1.0E–02	ND	7.5E–04
cobalt	6.3E–03	3.7E–07	2.6E–06	1.0E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.8E–05	4.1E–05	2.4E–05	4.4E–02	1.0E–01	6.2E–02	1.2E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	7.3E–06	6.5E–06	2.1E–05	NA	NA	NA	NA	NA	NA	3.8E+00	1.1E+00	5.9E–01	1.9E+00	ND	2.2E–01
manganese	1.3E–02	3.2E–05	7.5E–06	2.6E–05	1.2E–01	3.5E–02	1.2E–01	1.6E–02	1.7E–01	NA	2.6E–01	1.8E–01	2.1E–02	7.4E–02	ND	2.5E–02
mercury	8.3E–07	2.5E–06	2.0E–04	1.4E–06	1.5E+00	2.5E+02	1.8E+00	5.2E–02	5.5E–01	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.6E–06	1.5E–05	1.5E–05	3.6E–02	1.4E–01	1.4E–01	4.2E–03	3.5E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.2E–05	1.1E–05	7.5E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	7.9E–07	2.1E–06	2.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.3E–05	2.0E–05	5.4E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	5.3E–06	9.1E–05	1.8E–05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	7.1E–04	1.6E–05	2.0E–04	9.0E–03	1.2E–03	1.4E–02	1.6E–02	9.9E–02	NA	8.3E+01	1.3E+01	1.9E–01	2.3E+00	ND	4.8E+00
vanadium	ND	6.3E–06	4.9E–06	1.6E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	8.3E–05	2.0E–03	8.0E–04	9.4E–02	2.3E+00	9.0E–01	7.2E–04	9.2E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	3.6E–10	6.6E–11	1.5E–10	2.9E–05	1.2E–05	2.7E–05	7.6E–06	1.1E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	5.9E–12	1.3E–15	1.8E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E–12	1.1E–10	2.0E–15	4.1E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	7.2E–10	1.0E–08	1.3E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	8.8E–10	8.7E–11	1.1E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.0E–02	1.2E–03	2.6E–03	1.9E–03	2.9E+00	2.5E+02	3.1E+00	2.5E–01	9.1E–01		8.8E+01	1.4E+01	8.9E–01	4.3E+00	0.0E+00	5.0E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31a
ILCRs FOR CT ON–PROPERTY FARMER
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	8.1E−13	7.1E−12	2.3E−11	3.0E−11	2.7E−08	2.1E−07	2.7E−07	6.5E−09	NA	6.3E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	5.5E−10	2.3E−11	3.8E−13	1.3E−13	2.8E−08	2.3E−09	7.5E−10	2.1E−08	NA	5.5E−07	3.8E−08	6.3E−09	6.0E−11	2.0E−11	NA	NA
Pu_{238}	2.1E−08	5.6E−10	3.8E−14	2.8E−14	1.4E−09	2.1E−11	1.5E−11	2.2E−07	NA	3.8E−10	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.9E−09	8.2E−11	1.4E−14	1.0E−14	3.9E−10	6.0E−12	4.4E−12	6.4E−08	NA	1.0E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	7.7E−08	4.7E−08	4.9E−09	3.2E−08	1.0E−07	5.5E−08	3.6E−07	4.9E−07	NA	5.1E−05	7.4E−06	1.2E−06	5.4E−08	3.6E−07	4.2E−07	NA
Ru_{106}	1.9E−11	1.9E−12	3.5E−13	4.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.9E−12	2.6E−11	4.3E−12	7.8E−11	4.9E−07	1.9E−07	3.5E−06	1.4E−08	NA	ND	3.5E−08	8.3E−09	7.9E−10	1.4E−08	NA	NA
Tc_{99}	4.2E−12	3.4E−12	5.1E−12	2.2E−11	3.7E−07	2.6E−06	1.1E−05	1.8E−09	NA	1.1E−11	1.3E−05	2.0E−06	1.8E−06	8.0E−06	NA	NA
Th_{230}	7.0E−07	1.5E−09	3.5E−12	1.1E−11	2.5E−09	2.5E−10	7.6E−10	2.1E−07	NA	1.2E−08	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.0E−07	1.5E−09	3.4E−12	1.0E−11	1.4E−08	1.4E−09	4.2E−09	1.2E−06	NA	7.9E−04	NA	NA	NA	NA	NA	NA
U_{234}	1.6E−06	4.7E−09	1.0E−10	1.1E−09	9.8E−07	1.2E−07	1.3E−06	1.8E−06	NA	4.5E−08	4.4E−05	6.2E−06	8.4E−08	9.5E−07	NA	NA
$U_{235/236}$	1.3E−07	3.9E−10	8.3E−12	9.0E−11	8.2E−08	1.0E−08	1.1E−07	1.5E−07	NA	3.0E−05	2.0E−06	2.8E−07	3.8E−09	4.3E−08	NA	NA
U_{238+2d}	3.5E−06	9.0E−09	1.9E−10	2.1E−09	2.2E−06	2.7E−07	2.9E−06	4.0E−06	NA	7.0E−05	7.6E−05	1.1E−05	1.4E−07	1.6E−06	NA	NA
Rn_{222+4d}	1.3E−06	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.5E−06	6.5E−08	5.2E−09	3.5E−08	4.3E−06	3.5E−06	2.0E−05	8.1E−06		9.5E−04	1.4E−04	2.0E−05	2.1E−06	1.1E−05	4.2E−07	
Chemicals																
arsenic	5.2E−09	3.9E−09	2.9E−09	3.2E−10	2.2E−06	4.9E−06	5.4E−07	2.7E−06	2.4E−08	NA	2.8E−05	5.6E−06	2.1E−06	2.3E−07	ND	7.0E−08
beryllium	3.2E−10	9.7E−10	4.3E−10	1.4E−12	1.5E−07	2.7E−07	8.7E−10	7.4E−07	7.4E−07	NA	3.0E−10	5.5E−11	8.6E−12	2.8E−14	ND	7.2E−11
cadmium	9.2E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.0E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	6.9E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.0E−17	8.5E−17	3.1E−20	3.7E−20	3.4E−09	1.4E−12	1.7E−12	1.1E−11	5.0E−14	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.0E−14	3.4E−15	6.9E−15	2.0E−09	8.0E−10	1.6E−09	5.8E−10	2.1E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	5.1E−14	5.2E−16	6.0E−16	2.1E−08	2.3E−10	2.7E−10	4.3E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.0E−16	9.1E−17	1.9E−20	2.3E−20	3.0E−09	7.7E−13	9.5E−13	8.1E−12	2.0E−11	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.1E−07	3.9E−11	4.9E−11	3.6E−10	9.7E−10	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	2.4E−10	9.4E−14	1.1E−13	7.5E−13	2.0E−12	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.1E−16	1.0E−14	1.8E−19	3.4E−19	1.5E−08	3.9E−13	7.1E−13	1.9E−11	4.8E−11	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	9.5E−15	5.7E−17	7.2E−17	1.4E−08	1.2E−10	1.5E−10	3.0E−10	8.1E−10	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	3.0E−13	1.3E−17	1.6E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.2E−10	3.6E−08	2.4E−10	2.8E−10	9.4E−09	7.8E−11	9.1E−11	1.6E−10	6.0E−10	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.3E−09	2.6E−08	1.9E−11	2.2E−11	7.2E−09	5.9E−12	6.8E−12	3.3E−11	8.3E−11	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.8E−12	1.1E−12	1.3E−12	1.5E−12	6.1E−08	1.4E−07	1.6E−07	2.2E−08	2.2E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.4E−11	7.9E−11	2.5E−10	2.9E−10	1.9E−06	1.5E−05	1.7E−05	1.2E−06	1.2E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.8E−12	1.0E−11	3.4E−11	3.9E−11	2.4E−07	2.0E−06	2.3E−06	1.6E−07	1.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.0E−13	3.4E−12	6.5E−11	7.5E−11	3.1E−08	2.4E−06	2.7E−06	5.3E−08	5.3E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	1.3E−14	7.6E−14	9.1E−14	1.0E−13	3.8E−09	8.5E−09	9.8E−09	1.3E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.1E−12	2.3E−11	4.1E−10	4.7E−10	2.2E−07	1.7E−05	1.9E−05	3.7E−07	3.7E−07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.5E−12	1.4E−11	1.4E−10	1.6E−10	2.2E−07	7.4E−06	8.5E−06	2.7E−07	2.7E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	5.7E−10	3.1E−09	3.5E−09	4.4E−06	2.8E−05	3.2E−05	2.5E−06	1.7E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.4E−12	2.5E−10	2.8E−10	2.4E−07	4.9E−05	5.6E−05	6.0E−07	3.9E−07	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.5E−14	4.4E−13	5.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.6E−14	2.2E−14	2.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	2.9E−15	1.4E−14	1.2E−14	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.6E−14	2.3E−13	2.1E−14	2.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	2.6E−10	7.1E−07	9.2E−07	2.0E−09	9.7E−10	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.7E−14	2.1E−13	1.5E−10	1.9E−10	3.6E−11	1.1E−06	1.4E−06	6.8E−10	3.3E−10	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.3E−14	5.8E−14	6.2E−11	8.0E−11	3.3E−11	2.0E−06	2.6E−06	8.0E−10	3.9E−10	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	3.9E−08	6.7E−08	8.0E−09	5.7E−09	9.8E−06	1.3E−04	1.4E−04	8.7E−06	4.9E−06		2.8E−05	5.6E−06	2.1E−06	2.3E−07	0.0E+00	7.0E−08
Sum Chem (BaP for PAHs):	3.9E−08	6.7E−08	9.8E−09	7.8E−09	1.4E−05	2.1E−04	2.3E−04	1.2E−05	8.1E−06		2.8E−05	5.6E−06	2.1E−06	2.3E−07	0.0E+00	7.0E−08
TOTAL ALL (TEF Approach):	7.6E−06	1.3E−07	1.3E−08	4.1E−08	1.4E−05	1.3E−04	1.6E−04	1.7E−05	4.9E−06	9.5E−04	1.7E−04	2.6E−05	4.2E−06	1.1E−05	4.2E−07	7.0E−08
TOTAL ALL (BaP Approach):	7.6E−06	1.3E−07	1.5E−08	4.3E−08	1.8E−05	2.1E−04	2.5E−04	2.0E−05	8.1E−06	9.5E−04	1.7E−04	2.6E−05	4.2E−06	1.1E−05	4.2E−07	7.0E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31b
ILCRs FOR CT ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	9.3E−14	8.2E−13	2.7E−12	3.4E−12	2.3E−08	1.8E−07	2.3E−07	5.5E−09	NA	5.3E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.7E−11	1.6E−12	2.6E−14	8.6E−15	6.3E−08	5.0E−09	1.7E−09	4.6E−08	NA	1.2E−06	1.5E−09	2.5E−10	2.4E−12	8.2E−13	NA	NA
Pu_{238}	1.2E−09	3.1E−11	2.1E−15	1.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.8E−10	8.0E−12	1.4E−15	1.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	7.2E−09	4.4E−09	4.6E−10	3.0E−09	NA	NA	NA	NA	NA	NA	7.5E−06	1.2E−06	5.4E−08	3.6E−07	4.2E−07	NA
Ru_{106}	2.5E−12	2.5E−13	4.5E−14	5.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	5.3E−13	2.3E−12	3.8E−13	7.0E−12	4.4E−07	1.8E−07	3.2E−06	1.3E−08	NA	ND	1.5E−11	3.5E−12	3.3E−13	6.0E−12	NA	NA
Tc_{99}	5.3E−13	4.4E−13	6.4E−13	2.7E−12	1.1E−07	7.8E−07	3.3E−06	5.3E−10	NA	3.3E−12	4.7E−07	7.3E−08	6.8E−08	3.0E−07	NA	NA
Th_{230}	3.2E−08	6.9E−11	1.6E−13	4.9E−13	6.8E−11	6.9E−12	2.1E−11	5.8E−09	NA	3.3E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.3E−08	9.7E−11	2.3E−13	6.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	8.2E−08	2.4E−10	5.2E−12	5.6E−11	9.0E−09	1.1E−09	1.2E−08	1.6E−08	NA	4.2E−10	1.0E−07	1.4E−08	2.0E−10	2.2E−09	NA	NA
$U_{235/236}$	7.1E−09	2.2E−11	4.6E−13	5.0E−12	1.6E−09	1.9E−10	2.1E−09	2.9E−09	NA	5.8E−07	4.7E−09	6.5E−10	8.9E−12	1.0E−10	NA	NA
U_{238+2d}	2.0E−07	5.1E−10	1.1E−11	1.2E−10	2.0E−08	2.4E−09	2.7E−08	3.6E−08	NA	6.3E−07	1.8E−07	2.4E−08	3.3E−10	3.8E−09	NA	NA
Rn_{222+4d}	2.0E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	5.5E−07	5.4E−09	4.8E−10	3.2E−09	6.7E−07	1.1E−06	6.8E−06	1.3E−07		7.8E−06	8.3E−06	1.4E−06	1.2E−07	6.6E−07	4.2E−07	
Chemicals																
arsenic	1.4E−09	1.0E−09	7.6E−10	8.3E−11	NA	NA	NA	NA	NA	NA	3.9E−06	7.8E−07	2.9E−07	3.2E−08	ND	9.8E−09
beryllium	8.0E−11	2.4E−10	1.1E−10	3.5E−13	2.0E−07	3.6E−07	1.2E−09	9.9E−07	9.9E−07	NA	2.8E−21	5.0E−22	7.8E−23	2.6E−25	ND	6.6E−22
cadmium	3.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	7.4E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.0E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	3.5E−18	2.9E−17	1.1E−20	1.3E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	4.8E−15	8.1E−16	1.7E−15	4.2E−09	1.6E−09	3.3E−09	1.2E−09	4.3E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.8E−15	3.9E−17	4.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.3E−17	2.0E−17	4.0E−21	5.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.2E−17	6.5E−16	1.2E−20	2.1E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.7E−15	1.1E−17	1.3E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	9.8E−14	4.4E−18	5.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.1E−09	1.7E−07	1.2E−09	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.0E−09	1.2E−07	8.9E−11	1.0E−10	1.4E−09	1.1E−12	1.3E−12	6.3E−12	1.6E−11	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.3E−13	1.4E−13	1.6E−13	1.9E−13	2.1E−09	4.8E−09	5.5E−09	7.6E−10	7.6E−10	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E−12	1.1E−11	3.4E−11	3.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.8E−13	1.6E−12	5.4E−12	6.2E−12	1.1E−08	9.1E−08	1.0E−07	7.2E−09	7.2E−09	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.0E−13	5.9E−13	1.1E−11	1.3E−11	1.9E−09	1.5E−07	1.7E−07	3.3E−09	3.3E−09	NA	NA	NA	NA	NA	NA	NA
chrysene	1.9E−15	1.2E−14	1.4E−14	1.6E−14	2.3E−10	5.1E−10	5.9E−10	8.1E−11	8.1E−11	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.8E−13	3.3E−12	5.9E−11	6.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.1E−13	2.3E−12	2.2E−11	2.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	4.0E−11	2.2E−10	2.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	8.4E−13	8.5E−11	9.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.5E−15	8.4E−14	9.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	9.2E−16	1.2E−15	1.4E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.0E−16	1.9E−15	1.6E−15	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	3.9E−15	2.0E−14	1.8E−15	2.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	9.3E−15	4.1E−14	2.9E−11	3.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	4.5E−15	2.0E−14	2.1E−11	2.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E−08	3.0E−07	2.6E−09	2.1E−09	2.2E−07	6.0E−07	2.8E−07	1.0E−06	1.0E−06		3.9E−06	7.8E−07	2.9E−07	3.2E−08	0.0E+00	9.8E−09
Sum Chem (BaP for PAHs):	1.7E−08	3.0E−07	2.9E−09	2.4E−09	4.0E−07	4.0E−06	4.3E−06	1.1E−06	1.1E−06		3.9E−06	7.8E−07	2.9E−07	3.2E−08	0.0E+00	9.8E−09
TOTAL ALL (TEF Approach):	5.6E−07	3.0E−07	3.1E−09	5.3E−09	8.9E−07	1.7E−06	7.1E−06	1.1E−06	1.0E−06	7.8E−06	1.2E−05	2.1E−06	4.1E−07	6.9E−07	4.2E−07	9.8E−09
TOTAL ALL (BaP Approach):	5.6E−07	3.0E−07	3.4E−09	5.6E−09	1.1E−06	5.2E−06	1.1E−05	1.3E−06	1.1E−06	7.8E−06	1.2E−05	2.1E−06	4.1E−07	6.9E−07	4.2E−07	9.8E−09

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31c
ILCRs FOR CT ON–PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.5E−13	3.1E−12	1.0E−11	1.3E−11	2.4E−08	1.9E−07	2.4E−07	5.8E−09	NA	5.6E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.2E−10	5.1E−12	8.5E−14	2.8E−14	NA	NA	NA	NA	NA	NA	1.3E−08	2.1E−09	2.0E−11	6.8E−12	NA	NA
Pu_{238}	4.0E−09	1.0E−10	7.1E−15	5.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.5E−10	2.4E−11	4.2E−15	3.0E−15	9.5E−11	1.4E−12	1.1E−12	1.5E−08	NA	2.4E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	9.6E−08	5.9E−08	6.1E−09	4.0E−08	1.8E−08	9.6E−09	6.3E−08	8.5E−08	NA	8.9E−06	7.7E−06	1.3E−06	5.5E−08	3.7E−07	4.3E−07	NA
Ru_{106}	3.6E−12	3.6E−13	6.5E−14	7.4E−17	1.6E−08	1.7E−08	1.9E−11	6.1E−09	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.6E−12	1.6E−11	2.6E−12	4.8E−11	8.2E−07	3.2E−07	5.9E−06	2.4E−08	NA	ND	8.6E−10	2.0E−10	2.0E−11	3.6E−10	NA	NA
Tc_{99}	4.8E−12	3.9E−12	5.7E−12	2.5E−11	NA	NA	NA	NA	NA	NA	4.1E−06	6.3E−07	5.9E−07	2.6E−06	NA	NA
Th_{230}	8.6E−07	1.8E−09	4.3E−12	1.3E−11	7.5E−11	7.6E−12	2.3E−11	6.5E−09	NA	3.6E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.0E−07	7.6E−10	1.8E−12	5.4E−12	1.2E−08	1.2E−09	3.6E−09	1.0E−06	NA	6.8E−04	NA	NA	NA	NA	NA	NA
U_{234}	4.8E−07	1.4E−09	3.0E−11	3.3E−10	4.7E−09	5.7E−10	6.3E−09	8.6E−09	NA	2.2E−10	2.4E−05	3.3E−06	4.5E−08	5.1E−07	NA	NA
$U_{235/236}$	3.5E−08	1.1E−10	2.2E−12	2.5E−11	2.8E−08	3.4E−09	3.7E−08	5.1E−08	NA	1.0E−05	1.1E−06	1.5E−07	2.0E−09	2.3E−08	NA	NA
U_{238+2d}	9.6E−07	2.5E−09	5.3E−11	5.7E−10	1.1E−08	1.3E−09	1.4E−08	1.9E−08	NA	3.4E−07	4.0E−05	5.6E−06	7.6E−08	8.6E−07	NA	NA
Rn_{222+4d}	7.4E−07	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.3E−06	6.6E−08	6.2E−09	4.1E−08	9.3E−07	5.4E−07	6.3E−06	1.2E−06		7.0E−04	7.7E−05	1.1E−05	7.7E−07	4.3E−06	4.3E−07	
Chemicals																
arsenic	2.6E−09	1.9E−09	1.4E−09	1.6E−10	NA	NA	NA	NA	NA	NA	1.3E−05	2.7E−06	9.9E−07	1.1E−07	ND	3.4E−08
beryllium	1.8E−10	5.4E−10	2.4E−10	7.7E−13	1.2E−07	2.2E−07	7.1E−10	6.0E−07	6.0E−07	NA	1.1E−14	2.0E−15	3.2E−16	1.1E−18	ND	2.7E−15
cadmium	5.5E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	3.7E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.5E−17	1.3E−16	4.7E−20	5.5E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.9E−14	3.3E−15	6.6E−15	6.8E−10	2.7E−10	5.4E−10	1.9E−10	7.0E−12	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.6E−14	4.7E−16	5.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.1E−16	9.5E−17	1.9E−20	2.4E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.2E−16	1.3E−14	2.3E−19	4.1E−19	2.8E−08	7.1E−13	1.3E−12	3.5E−11	8.7E−11	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	2.6E−15	1.6E−17	2.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	4.3E−13	1.9E−17	2.4E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.4E−10	3.9E−08	2.6E−10	3.0E−10	7.5E−09	6.3E−11	7.3E−11	1.3E−10	4.8E−10	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.4E−09	2.9E−08	2.1E−11	2.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.3E−12	8.0E−13	9.4E−13	1.1E−12	1.6E−08	3.7E−08	4.2E−08	5.8E−09	5.8E−09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.1E−11	6.3E−11	2.0E−10	2.3E−10	4.7E−07	3.6E−06	4.2E−06	3.0E−07	3.0E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.3E−12	7.5E−12	2.5E−11	2.9E−11	2.0E−07	1.6E−06	1.9E−06	1.3E−07	1.3E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	5.8E−13	3.3E−12	6.3E−11	7.3E−11	5.6E−09	4.3E−07	4.9E−07	9.6E−09	9.6E−09	NA	NA	NA	NA	NA	NA	NA
chrysene	8.4E−15	5.0E−14	6.0E−14	7.0E−14	1.7E−09	3.9E−09	4.5E−09	6.1E−10	6.1E−10	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	3.7E−12	2.1E−11	3.7E−10	4.3E−10	2.5E−08	1.9E−06	2.1E−06	4.2E−08	4.2E−08	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	1.9E−12	1.1E−11	1.0E−10	1.2E−10	3.4E−08	1.1E−06	1.3E−06	4.1E−08	4.1E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.0E−10	1.6E−09	1.8E−09	2.8E−08	1.8E−07	2.0E−07	1.6E−08	1.1E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.7E−12	3.8E−10	4.4E−10	5.9E−08	1.2E−05	1.4E−05	1.5E−07	9.8E−08	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.5E−14	3.3E−13	3.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.3E−15	4.4E−15	5.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.0E−16	2.8E−15	2.4E−15	2.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.4E−15	4.8E−14	4.3E−15	5.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.9E−14	8.3E−14	5.9E−11	7.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.9E−14	8.5E−14	9.1E−11	1.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.1E−08	7.1E−08	4.8E−09	3.8E−09	1.0E−06	2.1E−05	2.4E−05	1.3E−06	1.2E−06		1.3E−05	2.7E−06	9.9E−07	1.1E−07	0.0E+00	3.4E−08
Sum Chem (BaP for PAHs):	2.1E−08	7.1E−08	6.4E−09	5.7E−09	3.1E−06	4.4E−05	5.1E−05	2.7E−06	2.6E−06		1.3E−05	2.7E−06	9.9E−07	1.1E−07	0.0E+00	3.4E−08
TOTAL ALL (TEF Approach):	3.3E−06	1.4E−07	1.1E−08	4.5E−08	1.9E−06	2.2E−05	3.1E−05	2.5E−06	1.2E−06	7.0E−04	9.0E−05	1.4E−05	1.8E−06	4.4E−06	4.3E−07	3.4E−08
TOTAL ALL (BaP Approach):	3.3E−06	1.4E−07	1.3E−08	4.7E−08	4.0E−06	4.5E−05	5.7E−05	3.9E−06	2.6E−06	7.0E−04	9.0E−05	1.4E−05	1.8E−06	4.4E−06	4.3E−07	3.4E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31d
ILCRs FOR CT ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.5E−13	1.4E−12	4.5E−12	5.7E−12	1.5E−08	1.2E−07	1.5E−07	3.7E−09	NA	3.6E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.7E−11	3.2E−12	5.3E−14	1.8E−14	NA	NA	NA	NA	NA	NA	4.0E−07	6.6E−08	6.3E−10	2.1E−10	NA	NA
Pu_{238}	5.3E−09	1.4E−10	9.6E−15	7.0E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	6.2E−10	1.8E−11	3.0E−15	2.2E−15	2.2E−10	3.3E−12	2.4E−12	3.5E−08	NA	5.6E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.4E−08	8.9E−09	9.2E−10	6.0E−09	NA	NA	NA	NA	NA	NA	3.7E−05	6.1E−06	2.7E−07	1.8E−06	2.1E−06	NA
Ru_{106}	1.8E−12	1.8E−13	3.2E−14	3.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−12	5.5E−12	9.2E−13	1.7E−11	6.7E−07	2.7E−07	4.8E−06	2.0E−08	NA	ND	1.4E−06	3.4E−07	3.3E−08	6.0E−07	NA	NA
Tc_{99}	1.4E−12	1.2E−12	1.7E−12	7.3E−12	NA	NA	NA	NA	NA	NA	2.6E−05	4.1E−06	3.8E−06	1.6E−05	NA	NA
Th_{230}	2.3E−07	4.9E−10	1.1E−12	3.5E−12	7.0E−11	7.0E−12	2.1E−11	6.0E−09	NA	3.4E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	5.7E−08	4.2E−10	9.7E−13	3.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	3.8E−07	1.1E−09	2.4E−11	2.6E−10	1.5E−08	1.8E−09	2.0E−08	2.8E−08	NA	7.0E−10	1.5E−04	2.0E−05	2.8E−07	3.1E−06	NA	NA
$U_{235/236}$	2.8E−08	8.5E−11	1.8E−12	2.0E−11	1.8E−09	2.2E−10	2.4E−09	3.3E−09	NA	6.7E−07	6.6E−06	9.2E−07	1.3E−08	1.4E−07	NA	NA
U_{238+2d}	8.0E−07	2.1E−09	4.4E−11	4.8E−10	1.8E−08	2.2E−09	2.4E−08	3.4E−08	NA	5.8E−07	2.5E−04	3.5E−05	4.7E−07	5.3E−06	NA	NA
Rn_{222+4d}	8.9E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.6E−06	1.3E−08	9.9E−10	6.8E−09	7.2E−07	3.9E−07	5.0E−06	1.3E−07		4.8E−06	4.7E−04	6.6E−05	4.9E−06	2.7E−05	2.1E−06	
Chemicals																
arsenic	1.4E−09	1.1E−09	8.0E−10	8.7E−11	NA	NA	NA	NA	NA	NA	1.6E−05	3.3E−06	1.2E−06	1.3E−07	ND	4.1E−08
beryllium	9.7E−11	2.9E−10	1.3E−10	4.2E−13	1.8E−07	3.1E−07	1.0E−09	8.6E−07	8.6E−07	NA	8.4E−07	1.5E−07	2.4E−08	7.9E−11	ND	2.0E−07
cadmium	2.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	7.6E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	1.7E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.8E−18	1.5E−17	5.6E−21	6.6E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.1E−15	8.6E−16	1.7E−15	3.6E−10	1.4E−10	2.9E−10	1.0E−10	3.7E−12	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.1E−14	1.1E−16	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.6E−17	1.7E−17	3.4E−21	4.3E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E−16	2.0E−15	3.6E−20	6.6E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	8.1E−16	4.9E−18	6.2E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	5.3E−14	2.4E−18	2.9E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.7E−11	9.4E−09	6.3E−11	7.3E−11	1.3E−09	1.1E−11	1.2E−11	2.2E−11	8.2E−11	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.4E−10	7.0E−09	5.1E−12	5.9E−12	6.8E−10	5.6E−13	6.5E−13	3.2E−12	7.9E−12	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E−13	1.9E−13	2.3E−13	2.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.4E−12	1.4E−11	4.5E−11	5.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.1E−13	1.8E−12	5.9E−12	6.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E−13	6.3E−13	1.2E−11	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.2E−15	1.3E−14	1.6E−14	1.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.3E−13	4.2E−12	7.4E−11	8.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.5E−13	2.5E−12	2.4E−11	2.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.2E−10	6.3E−10	7.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	4.5E−13	4.6E−11	5.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.3E−15	8.1E−14	9.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.3E−15	4.5E−15	5.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.4E−16	1.6E−15	1.4E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.7E−15	3.9E−14	3.5E−15	4.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	4.5E−15	2.0E−14	1.4E−11	1.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.4E−15	1.0E−14	1.1E−11	1.4E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.0E−08	1.8E−08	1.9E−09	1.2E−09	1.8E−07	3.1E−07	1.3E−09	8.6E−07	8.6E−07		1.7E−05	3.4E−06	1.2E−06	1.3E−07	0.0E+00	2.4E−07
Sum Chem (BaP for PAHs):	1.0E−08	1.8E−08	2.2E−09	1.5E−09	1.8E−07	3.1E−07	1.3E−09	8.6E−07	8.6E−07		1.7E−05	3.4E−06	1.2E−06	1.3E−07	0.0E+00	2.4E−07
TOTAL ALL (TEF Approach):	1.6E−06	3.1E−08	2.8E−09	7.9E−09	9.0E−07	7.0E−07	5.0E−06	9.9E−07	8.6E−07	4.8E−06	4.8E−04	7.0E−05	6.1E−06	2.8E−05	2.1E−06	2.4E−07
TOTAL ALL (BaP Approach):	1.6E−06	3.1E−08	3.2E−09	8.3E−09	9.0E−07	7.0E−07	5.0E−06	9.9E−07	8.6E−07	4.8E−06	4.8E−04	7.0E−05	6.1E−06	2.8E−05	2.1E−06	2.4E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31e
ILCRs FOR CT ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.6E−13	1.4E−12	4.6E−12	5.8E−12	2.3E−08	1.8E−07	2.3E−07	5.5E−09	NA	5.3E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	9.2E−11	3.8E−12	6.4E−14	2.1E−14	NA	NA	NA	NA	NA	NA	3.1E−07	5.1E−08	4.9E−10	1.6E−10	NA	NA
Pu_{238}	6.3E−09	1.7E−10	1.1E−14	8.3E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.2E−10	2.0E−11	3.5E−15	2.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.2E−08	7.4E−09	7.6E−10	5.0E−09	NA	NA	NA	NA	NA	NA	3.1E−05	5.2E−06	2.3E−07	1.5E−06	1.8E−06	NA
Ru_{106}	2.9E−12	2.9E−13	5.3E−14	6.0E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.2E−12	5.3E−12	8.8E−13	1.6E−11	5.1E−07	2.0E−07	3.6E−06	1.5E−08	NA	ND	9.6E−07	2.3E−07	2.2E−08	4.0E−07	NA	NA
Tc_{99}	8.5E−13	7.0E−13	1.0E−12	4.4E−12	8.9E−08	6.3E−07	2.7E−06	4.3E−10	NA	2.7E−12	1.9E−05	2.9E−06	2.7E−06	1.2E−05	NA	NA
Th_{230}	2.4E−07	5.1E−10	1.2E−12	3.6E−12	8.9E−11	9.0E−12	2.7E−11	7.7E−09	NA	4.3E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.8E−08	3.5E−10	8.3E−13	2.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.0E−07	1.2E−09	2.5E−11	2.7E−10	4.3E−08	5.3E−09	5.7E−08	7.9E−08	NA	2.0E−09	1.0E−04	1.4E−05	1.9E−07	2.2E−06	NA	NA
$U_{235/236}$	3.2E−08	9.8E−11	2.1E−12	2.3E−11	5.5E−09	6.7E−10	7.3E−09	1.0E−08	NA	2.0E−06	4.6E−06	6.4E−07	8.8E−09	9.9E−08	NA	NA
U_{238+2d}	8.9E−07	2.3E−09	4.9E−11	5.3E−10	1.4E−07	1.7E−08	1.9E−07	2.6E−07	NA	4.5E−06	1.7E−04	2.4E−05	3.3E−07	3.7E−06	NA	NA
Rn_{222+4d}	6.9E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.7E−06	1.2E−08	8.5E−10	5.9E−09	8.1E−07	1.0E−06	6.8E−06	3.8E−07		1.2E−05	3.3E−04	4.7E−05	3.5E−06	2.0E−05	1.8E−06	
Chemicals																
arsenic	1.7E−09	1.2E−09	9.2E−10	1.0E−10	NA	NA	NA	NA	NA	NA	1.5E−05	3.0E−06	1.1E−06	1.2E−07	ND	3.7E−08
beryllium	9.7E−11	2.9E−10	1.3E−10	4.2E−13	2.2E−07	3.8E−07	1.2E−09	1.1E−06	1.1E−06	NA	7.9E−07	1.4E−07	2.3E−08	7.5E−11	ND	1.9E−07
cadmium	2.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	7.2E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	1.7E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.5E−18	1.3E−17	4.8E−21	5.6E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	8.2E−15	1.4E−15	2.8E−15	4.9E−09	1.9E−09	4.0E−09	1.4E−09	5.1E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	7.6E−15	7.7E−17	8.9E−17	1.0E−09	1.1E−11	1.3E−11	2.0E−11	5.5E−11	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E−17	1.1E−17	2.3E−21	2.9E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.0E−17	1.4E−15	2.5E−20	4.7E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	9.6E−16	5.8E−18	7.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	4.3E−14	1.9E−18	2.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.0E−11	1.1E−08	7.7E−11	8.9E−11	8.5E−10	7.1E−12	8.2E−12	1.5E−11	5.4E−11	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.3E−10	8.7E−09	6.4E−12	7.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.1E−13	1.9E−13	2.2E−13	2.5E−13	3.0E−09	6.7E−09	7.7E−09	1.1E−09	1.1E−09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.3E−12	1.3E−11	4.2E−11	4.9E−11	1.0E−07	7.8E−07	9.0E−07	6.4E−08	6.4E−08	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.9E−13	1.7E−12	5.6E−12	6.4E−12	1.3E−08	1.1E−07	1.2E−07	8.5E−09	8.5E−09	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	9.5E−14	5.5E−13	1.0E−11	1.2E−11	2.5E−09	1.9E−07	2.2E−07	4.2E−09	4.2E−09	NA	NA	NA	NA	NA	NA	NA
chrysene	2.3E−15	1.4E−14	1.6E−14	1.9E−14	2.6E−10	5.8E−10	6.7E−10	9.2E−11	9.2E−11	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.4E−13	3.7E−12	6.5E−11	7.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.4E−13	2.5E−12	2.4E−11	2.7E−11	1.2E−08	3.9E−07	4.6E−07	1.4E−08	1.4E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.1E−10	5.9E−10	6.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.7E−13	3.7E−11	4.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	5.9E−15	7.6E−14	8.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.3E−15	4.5E−15	5.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.8E−16	1.8E−15	1.5E−15	1.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.4E−15	4.3E−14	3.8E−15	4.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.0E−15	2.2E−14	1.6E−11	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.9E−15	8.2E−15	8.8E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	9.9E−09	2.2E−08	1.9E−09	1.1E−09	3.5E−07	1.9E−06	1.7E−06	1.1E−06	1.1E−06		1.6E−05	3.1E−06	1.1E−06	1.2E−07	0.0E+00	2.3E−07
Sum Chem (BaP for PAHs):	9.9E−09	2.2E−08	2.2E−09	1.5E−09	6.0E−07	7.2E−06	7.9E−06	1.3E−06	1.3E−06		1.6E−05	3.1E−06	1.1E−06	1.2E−07	0.0E+00	2.3E−07
TOTAL ALL (TEF Approach):	1.7E−06	3.4E−08	2.8E−09	7.0E−09	1.2E−06	2.9E−06	8.5E−06	1.5E−06	1.1E−06	1.2E−05	3.5E−04	5.0E−05	4.6E−06	2.0E−05	1.8E−06	2.3E−07
TOTAL ALL (BaP Approach):	1.7E−06	3.4E−08	3.1E−09	7.3E−09	1.4E−06	8.3E−06	1.5E−05	1.7E−06	1.3E−06	1.2E−05	3.5E−04	5.0E−05	4.6E−06	2.0E−05	1.8E−06	2.3E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–31f
ILCRs FOR CT ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.4E−13	1.3E−12	4.2E−12	5.3E−12	3.2E−08	2.6E−07	3.3E−07	7.9E−09	NA	7.6E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.4E−11	3.5E−12	5.9E−14	1.9E−14	8.4E−08	6.7E−09	2.2E−09	6.1E−08	NA	1.6E−06	1.6E−07	2.7E−08	2.6E−10	8.7E−11	NA	NA
Pu_{238}	1.6E−09	4.2E−11	2.9E−15	2.1E−15	1.0E−10	1.6E−12	1.2E−12	1.7E−08	NA	2.9E−11	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.6E−10	1.0E−11	1.8E−15	1.3E−15	1.1E−10	1.7E−12	1.2E−12	1.8E−08	NA	2.8E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.5E−08	9.2E−09	9.5E−10	6.2E−09	1.4E−06	7.8E−07	5.1E−06	7.0E−06	NA	7.2E−04	2.8E−05	4.6E−06	2.0E−07	1.3E−06	1.6E−06	NA
Ru_{106}	8.3E−12	8.3E−13	1.5E−13	1.7E−16	2.0E−08	2.1E−08	2.3E−11	7.5E−09	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	9.6E−13	4.2E−12	6.9E−13	1.3E−11	4.7E−07	1.9E−07	3.4E−06	1.4E−08	NA	ND	3.5E−07	8.4E−08	8.1E−09	1.5E−07	NA	NA
Tc_{99}	6.5E−13	5.3E−13	7.7E−13	3.3E−12	8.2E−08	5.8E−07	2.5E−06	4.0E−10	NA	2.5E−12	1.3E−06	2.0E−07	1.8E−07	8.0E−07	NA	NA
Th_{230}	8.2E−08	1.8E−10	4.1E−13	1.2E−12	1.4E−09	1.4E−10	4.2E−10	1.2E−07	NA	6.7E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.0E−08	1.5E−10	3.4E−13	1.0E−12	1.3E−09	1.3E−10	3.9E−10	1.1E−07	NA	7.5E−05	NA	NA	NA	NA	NA	NA
U_{234}	1.1E−07	3.1E−10	6.7E−12	7.3E−11	7.4E−08	9.0E−09	9.8E−08	1.3E−07	NA	3.4E−09	2.7E−06	3.8E−07	5.2E−09	5.9E−08	NA	NA
$U_{235/236}$	1.0E−08	3.1E−11	6.5E−13	7.1E−12	3.1E−09	3.8E−10	4.2E−09	5.8E−09	NA	1.2E−06	1.2E−07	1.7E−08	2.4E−10	2.7E−09	NA	NA
U_{238+2d}	2.5E−07	6.5E−10	1.4E−11	1.5E−10	2.8E−07	3.4E−08	3.7E−07	5.1E−07	NA	8.9E−06	4.7E−06	6.5E−07	8.9E−09	1.0E−07	NA	NA
Rn_{222+4d}	2.2E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	7.1E−07	1.1E−08	9.8E−10	6.5E−09	2.5E−06	1.9E−06	1.2E−05	8.0E−06		8.2E−04	3.7E−05	5.9E−06	4.1E−07	2.4E−06	1.6E−06	
Chemicals																
arsenic	5.0E−09	3.8E−09	2.8E−09	3.0E−10	2.1E−06	4.5E−06	4.9E−07	2.5E−06	2.2E−08	NA	4.9E−06	9.8E−07	3.6E−07	4.0E−08	ND	1.2E−08
beryllium	1.4E−10	4.4E−10	1.9E−10	6.3E−13	9.4E−08	1.7E−07	5.4E−10	4.6E−07	4.6E−07	NA	1.8E−07	3.3E−08	5.2E−09	1.7E−11	ND	4.3E−08
cadmium	6.6E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.4E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	3.9E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.1E−18	1.8E−17	6.5E−21	7.6E−21	3.8E−09	1.6E−12	1.9E−12	1.2E−11	5.7E−14	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	4.6E−15	7.7E−16	1.6E−15	2.6E−08	1.0E−08	2.1E−08	7.4E−09	2.7E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	7.6E−15	7.7E−17	8.9E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.9E−17	1.3E−17	2.7E−21	3.4E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.0E−16	2.0E−15	3.6E−20	6.6E−20	2.4E−08	6.0E−13	1.1E−12	3.0E−11	7.4E−11	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	3.3E−15	2.0E−17	2.5E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.1E−14	2.7E−18	3.4E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	4.8E−10	7.9E−08	5.2E−10	6.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	2.8E−09	5.7E−08	4.2E−11	4.9E−11	2.0E−09	1.7E−12	1.9E−12	9.5E−12	2.4E−11	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.8E−13	1.7E−13	2.0E−13	2.3E−13	5.8E−08	1.3E−07	1.5E−07	2.1E−08	2.1E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.2E−12	1.3E−11	4.1E−11	4.7E−11	1.6E−06	1.2E−05	1.4E−05	1.0E−06	1.0E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.7E−13	1.5E−12	5.2E−12	6.0E−12	4.8E−07	3.9E−06	4.5E−06	3.1E−07	3.1E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E−13	6.3E−13	1.2E−11	1.4E−11	2.0E−09	1.5E−07	1.7E−07	3.3E−09	3.3E−09	NA	NA	NA	NA	NA	NA	NA
chrysene	1.9E−15	1.1E−14	1.4E−14	1.6E−14	3.3E−09	7.3E−09	8.4E−09	1.2E−09	1.2E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.1E−13	3.5E−12	6.2E−11	7.2E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.8E−13	2.1E−12	2.1E−11	2.4E−11	9.6E−09	3.2E−07	3.6E−07	1.1E−08	1.1E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	5.8E−11	3.1E−10	3.6E−10	2.7E−08	1.7E−07	2.0E−07	1.5E−08	1.0E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.1E−13	5.1E−11	5.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	5.7E−15	7.3E−14	8.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.3E−15	1.7E−15	1.9E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	7.5E−16	3.6E−15	3.0E−15	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.7E−15	3.4E−14	3.1E−15	3.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.6E−14	6.9E−14	4.9E−11	6.4E−11	1.0E−09	3.2E−05	4.1E−05	1.9E−08	9.5E−09	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E−15	1.2E−14	1.3E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E−08	1.4E−07	4.1E−09	1.6E−09	4.4E−06	5.4E−05	6.2E−05	4.4E−06	1.9E−06		5.1E−06	1.0E−06	3.7E−07	4.0E−08	0.0E+00	5.6E−08
Sum Chem (BaP for PAHs):	2.4E−08	1.4E−07	4.4E−09	2.0E−09	8.9E−06	8.7E−05	1.0E−04	7.1E−06	4.6E−06		5.1E−06	1.0E−06	3.7E−07	4.0E−08	0.0E+00	5.6E−08
TOTAL ALL (TEF Approach):	7.3E−07	1.5E−07	5.1E−09	8.1E−09	6.9E−06	5.6E−05	7.3E−05	1.2E−05	1.9E−06	8.2E−04	4.2E−05	6.9E−06	7.7E−07	2.5E−06	1.6E−06	5.6E−08
TOTAL ALL (BaP Approach):	7.3E−07	1.5E−07	5.4E−09	8.5E−09	1.1E−05	8.9E−05	1.1E−04	1.5E−05	4.6E−06	8.2E−04	4.2E−05	6.9E−06	7.7E−07	2.5E−06	1.6E−06	5.6E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

DRAFT

TABLE A.VII–31g
ILCRs FOR CT ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	1.6E−13	1.4E−12	4.7E−12	6.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	8.2E−11	3.4E−12	5.7E−14	1.9E−14	NA	NA	NA	NA	NA	NA	4.0E−07	6.6E−08	6.3E−10	2.1E−10	NA	NA
Pu_{238}	5.0E−09	1.3E−10	9.0E−15	6.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	6.2E−10	1.8E−11	3.0E−15	2.2E−15	6.2E−10	9.5E−12	6.9E−12	1.0E−07	NA	1.6E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.7E−05	6.1E−06	2.7E−07	1.8E−06	2.1E−06	NA
Ru_{106}	2.0E−12	2.0E−13	3.6E−14	4.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.6E−12	7.2E−12	1.2E−12	2.2E−11	5.3E−07	2.1E−07	3.8E−06	1.6E−08	NA	ND	1.4E−06	3.4E−07	3.3E−08	6.0E−07	NA	NA
Tc_{99}	2.6E−12	2.1E−12	3.2E−12	1.3E−11	NA	NA	NA	NA	NA	NA	2.6E−05	4.1E−06	3.8E−06	1.6E−05	NA	NA
Th_{230}	3.0E−07	6.4E−10	1.5E−12	4.5E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	4.0E−07	1.2E−09	2.5E−11	2.7E−10	8.1E−09	9.9E−10	1.1E−08	1.5E−08	NA	3.8E−10	1.5E−04	2.0E−05	2.8E−07	3.1E−06	NA	NA
$U_{235/236}$	3.0E−08	9.1E−11	2.0E−12	2.1E−11	1.8E−09	2.2E−10	2.4E−09	3.3E−09	NA	6.8E−07	6.6E−06	9.2E−07	1.3E−08	1.4E−07	NA	NA
U_{238+2d}	8.0E−07	2.1E−09	4.4E−11	4.8E−10	1.1E−08	1.3E−09	1.4E−08	1.9E−08	NA	3.4E−07	2.5E−04	3.5E−05	4.7E−07	5.3E−06	NA	NA
Rn_{222+4d}	1.3E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.7E−06	4.1E−09	8.2E−11	8.2E−10	5.5E−07	2.1E−07	3.9E−06	1.5E−07		1.0E−06	4.7E−04	6.6E−05	4.9E−06	2.7E−05	2.1E−06	
Chemicals																
arsenic	2.2E−09	1.6E−09	1.2E−09	1.3E−10	2.7E−06	6.0E−06	6.6E−07	3.3E−06	2.9E−08	NA	1.6E−05	3.3E−06	1.2E−06	1.3E−07	ND	4.1E−08
beryllium	1.3E−10	3.9E−10	1.7E−10	5.6E−13	9.3E−08	1.6E−07	5.3E−10	4.5E−07	4.5E−07	NA	8.4E−07	1.5E−07	2.4E−08	7.9E−11	ND	2.0E−07
cadmium	3.6E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.1E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.5E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.4E−18	2.0E−17	7.4E−21	8.6E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.6E−15	9.4E−16	1.9E−15	4.4E−10	1.7E−10	3.5E−10	1.2E−10	4.5E−12	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	1.5E−14	1.5E−16	1.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.3E−17	2.0E−17	4.0E−21	5.0E−21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−16	2.6E−15	4.7E−20	8.7E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	8.8E−16	5.3E−18	6.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.5E−14	2.9E−18	3.6E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.1E−11	1.0E−08	6.7E−11	7.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.7E−10	7.5E−09	5.5E−12	6.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.9E−12	1.6E−11	5.3E−11	6.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.6E−13	2.1E−12	6.9E−12	8.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−13	7.8E−13	1.5E−11	1.7E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.5E−15	1.5E−14	1.8E−14	2.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	9.1E−13	5.1E−12	9.2E−11	1.1E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.2E−13	2.9E−12	2.8E−11	3.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.2E−10	6.3E−10	7.2E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.6E−13	5.7E−11	6.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.7E−15	8.6E−14	9.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.1E−15	4.2E−15	4.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.4E−16	1.6E−15	1.4E−15	1.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.7E−15	3.9E−14	3.5E−15	4.1E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.0E−15	2.2E−14	1.6E−11	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.9E−15	1.3E−14	1.4E−11	1.8E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.5E−08	2.0E−08	2.3E−09	1.3E−09	2.8E−06	6.2E−06	6.6E−07	3.8E−06	4.8E−07		1.7E−05	3.4E−06	1.2E−06	1.3E−07	0.0E+00	2.4E−07
Sum Chem (BaP for PAHs):	1.5E−08	2.0E−08	2.7E−09	1.7E−09	2.8E−06	6.2E−06	6.6E−07	3.8E−06	4.8E−07		1.7E−05	3.4E−06	1.2E−06	1.3E−07	0.0E+00	2.4E−07
TOTAL ALL (TEF Approach):	1.7E−06	2.4E−08	2.4E−09	2.1E−09	3.4E−06	6.4E−06	4.5E−06	3.9E−06	4.8E−07	1.0E−06	4.8E−04	7.0E−05	6.1E−06	2.8E−05	2.1E−06	2.4E−07
TOTAL ALL (BaP Approach):	1.7E−06	2.4E−08	2.8E−09	2.5E−09	3.4E−06	6.4E−06	4.5E−06	3.9E−06	4.8E−07	1.0E−06	4.8E−04	7.0E−05	6.1E−06	2.8E−05	2.1E−06	2.4E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32a
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	7.5E–08	5.0E–13	5.7E–13	1.6E–01	1.2E–06	1.4E–06	4.8E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.3E–04	1.6E–04	5.7E–05	2.7E–01	2.5E–01	9.1E–02	6.6E–02	3.6E–02	NA	1.2E+00	6.1E–01	2.1E–01	7.7E–02	ND	1.9E–02
arsenic	ND	5.8E–05	4.3E–05	4.7E–06	3.3E–02	7.3E–02	8.0E–03	4.0E–02	3.5E–04	NA	4.1E–01	8.2E–02	3.1E–02	3.4E–03	ND	1.0E–03
barium	3.4E–04	1.1E–05	1.8E–06	1.5E–05	7.6E–03	1.6E–03	1.4E–02	3.7E–03	3.3E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.5E–07	1.5E–07	5.0E–10	5.5E–05	9.6E–05	3.1E–07	2.7E–04	2.2E–03	NA	1.1E–07	2.0E–08	3.1E–09	1.0E–11	ND	2.6E–08
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	1.0E–04	2.6E–05	1.7E–04	1.2E–01	3.3E–02	2.2E–01	5.9E–03	9.6E–03	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.5E–06	1.5E–05	1.5E–05	3.8E–03	1.1E–02	1.1E–02	6.1E–03	1.1E–03	NA	7.7E–04	2.1E–04	1.0E–04	1.0E–04	ND	8.2E–06
cobalt	9.4E–03	4.1E–07	2.6E–06	9.5E–07	2.1E–04	2.4E–03	8.8E–04	2.2E–04	4.1E–05	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.3E–05	2.7E–05	1.5E–05	4.4E–02	9.6E–02	5.2E–02	1.3E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	6.2E–06	5.1E–06	1.5E–05	3.5E–02	4.3E–02	1.2E–01	4.7E–04	7.7E–04	NA	5.4E–01	1.5E–01	7.0E–02	2.0E–01	ND	2.6E–02
manganese	1.8E–02	3.3E–05	7.0E–06	2.2E–05	3.1E–02	8.6E–03	2.7E–02	4.6E–03	1.3E–02	NA	2.2E–01	1.3E–01	1.5E–02	4.7E–02	ND	1.7E–02
mercury	1.9E–06	4.2E–06	3.1E–04	2.0E–06	6.8E–02	1.0E+01	6.7E–02	2.5E–03	6.8E–03	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	6.0E–06	1.4E–05	1.3E–05	1.4E–02	4.8E–02	4.3E–02	1.7E–03	3.7E–04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.4E–05	1.2E–05	7.4E–06	1.2E–02	1.1E–02	6.6E–03	1.4E–03	5.9E–05	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.5E–06	3.8E–06	3.7E–06	6.6E–04	1.8E–03	1.8E–03	1.9E–04	2.0E–05	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.5E–05	2.2E–05	5.2E–04	1.5E–02	2.4E–02	5.7E–01	1.1E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	6.3E–06	1.0E–04	1.8E–05	4.0E–04	7.4E–02	1.3E–02	7.3E–03	6.0E–04	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	1.2E–03	2.6E–05	2.8E–04	1.9E–01	2.3E–02	2.5E–01	3.4E–01	5.6E–01	NA	1.2E+01	1.6E+00	2.2E–02	2.5E–01	ND	5.6E–01
vanadium	ND	6.7E–06	4.8E–06	1.4E–07	1.8E–03	3.1E–03	8.9E–05	4.4E–03	7.2E–04	NA	NA	NA	NA	NA	NA	NA
zinc	ND	1.0E–04	2.2E–03	8.1E–04	6.5E–02	1.4E+00	5.2E–01	5.2E–04	1.7E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	5.6E–10	9.4E–11	1.9E–10	5.6E–05	2.2E–05	4.5E–05	1.6E–05	5.8E–07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.2E–11	2.4E–15	2.9E–15	3.8E–04	9.8E–08	1.2E–07	1.0E–06	2.5E–06	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	1.5E–04	5.6E–08	6.9E–08	5.0E–07	1.4E–06	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.5E–04	1.9E–04	2.2E–04	7.6E–05	4.3E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	2.9E–12	1.8E–10	3.1E–15	5.8E–15	2.6E–04	6.6E–09	1.2E–08	3.3E–07	8.1E–07	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	4.2E–04	2.6E–04	3.0E–04	7.7E–05	4.4E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.3E–04	3.6E–06	4.1E–06	1.4E–04	1.2E–06	1.4E–06	2.5E–06	9.0E–06	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.6E–09	2.0E–08	2.3E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.3E–09	2.1E–10	2.4E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.8E–02	2.4E–03	3.0E–03	2.0E–03	1.1E+00	1.2E+01	2.0E+00	4.9E–01	6.4E–01		1.4E+01	2.6E+00	3.5E–01	5.8E–01	0.0E+00	6.2E–01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32b
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.5E−08	9.8E−14	1.1E−13	9.8E−02	7.3E−07	8.4E−07	3.0E−05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	5.7E−05	3.8E−05	1.4E−05	3.7E−02	3.4E−02	1.2E−02	8.9E−03	4.9E−03	NA	7.0E−03	3.6E−03	1.2E−03	4.5E−04	ND	1.1E−04
arsenic	ND	1.5E−05	1.1E−05	1.2E−06	NA	NA	NA	NA	NA	NA	5.8E−02	1.2E−02	4.3E−03	4.7E−04	ND	1.5E−04
barium	5.5E−05	1.8E−06	2.8E−07	2.4E−06	3.3E−03	7.0E−04	5.9E−03	1.6E−03	1.5E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	8.8E−08	3.8E−08	1.3E−10	7.3E−05	1.3E−04	4.2E−07	3.6E−04	2.9E−03	NA	1.0E−18	1.8E−19	2.8E−20	9.4E−23	ND	2.4E−19
boron	NA	NA	NA	NA	4.9E−02	1.0E−02	7.0E−02	1.8E−04	2.9E−04	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.7E−05	9.6E−06	6.3E−05	3.9E−02	1.1E−02	7.0E−02	1.9E−03	3.1E−03	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.3E−06	3.6E−06	3.6E−06	2.0E−03	5.5E−03	5.5E−03	3.2E−03	5.8E−04	NA	1.5E−05	4.1E−06	2.0E−06	2.0E−06	ND	1.6E−07
cobalt	2.7E−03	1.2E−07	7.6E−07	2.8E−07	2.1E−04	2.4E−03	8.8E−04	2.2E−04	4.1E−05	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.7E−06	5.5E−06	3.0E−06	1.7E−02	3.7E−02	2.0E−02	5.0E−04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.1E−06	1.7E−06	4.9E−06	1.5E−01	1.8E−01	5.4E−01	2.0E−03	3.3E−03	NA	2.7E−01	7.4E−02	3.5E−02	1.0E−01	ND	1.3E−02
manganese	4.7E−03	8.6E−06	1.8E−06	5.8E−06	5.2E−02	1.4E−02	4.5E−02	7.6E−03	2.1E−02	NA	3.9E−02	2.4E−02	2.6E−03	8.4E−03	ND	3.1E−03
mercury	1.5E−07	3.3E−07	2.4E−05	1.6E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.5E−06	3.6E−06	3.3E−06	2.1E−02	7.4E−02	6.7E−02	2.6E−03	5.6E−04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	4.0E−06	3.5E−06	2.2E−06	7.8E−03	7.2E−03	4.4E−03	9.5E−04	3.9E−05	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.9E−07	7.2E−07	7.0E−07	5.9E−04	1.6E−03	1.6E−03	1.7E−04	1.8E−05	NA	NA	NA	NA	NA	NA	NA
silver	ND	4.2E−06	5.9E−06	1.4E−04	1.2E−02	1.9E−02	4.7E−01	8.7E−04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.4E−06	3.7E−05	6.8E−06	5.9E−04	1.1E−01	2.0E−02	1.1E−02	8.8E−04	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	8.3E−05	1.8E−06	1.9E−05	3.0E−03	3.7E−04	4.0E−03	5.5E−03	9.0E−03	NA	2.7E−02	3.8E−03	5.2E−05	5.8E−04	ND	1.3E−03
vanadium	ND	1.8E−06	1.3E−06	3.7E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	6.5E−05	1.4E−03	5.2E−04	3.1E−02	6.9E−01	2.5E−01	2.5E−04	8.3E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.3E−10	2.3E−11	4.6E−11	1.2E−04	4.5E−05	9.3E−05	3.3E−05	1.2E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.5E−12	5.1E−16	6.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.2E−05	1.1E−05	1.3E−05	4.5E−06	2.6E−05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.8E−13	1.1E−11	2.0E−16	3.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.6E−05	1.6E−05	1.9E−05	4.8E−06	2.8E−05	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.6E−03	1.7E−05	2.0E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.0E−10	3.8E−09	4.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.9E−10	1.7E−11	2.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.5E−03	2.9E−03	1.6E−03	8.1E−04	5.3E−01	1.2E+00	1.6E+00	4.8E−02	4.7E−02		4.0E−01	1.2E−01	4.3E−02	1.1E−01	0.0E+00	1.7E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32c
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.3E–08	2.8E–13	3.3E–13	1.0E–01	7.4E–07	8.5E–07	3.0E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	8.1E–05	5.5E–05	2.0E–05	5.9E–02	5.4E–02	2.0E–02	1.4E–02	7.8E–03	NA	1.3E+00	6.7E–01	2.3E–01	8.4E–02	ND	2.1E–02
arsenic	ND	2.9E–05	2.1E–05	2.3E–06	NA	NA	NA	NA	NA	NA	2.0E–01	4.0E–02	1.5E–02	1.6E–03	ND	5.0E–04
barium	1.3E–04	4.3E–06	6.7E–07	5.7E–06	4.4E–03	9.3E–04	7.9E–03	2.1E–03	1.9E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	2.0E–07	8.5E–08	2.8E–10	4.4E–05	7.8E–05	2.6E–07	2.2E–04	1.8E–03	NA	4.1E–12	7.4E–13	1.2E–13	3.9E–16	ND	9.8E–13
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	6.1E–05	1.6E–05	1.1E–04	5.5E–02	1.5E–02	9.8E–02	2.7E–03	4.4E–03	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	5.0E–06	7.7E–06	7.6E–06	2.1E–03	6.1E–03	6.0E–03	3.5E–03	6.4E–04	NA	3.3E–04	9.0E–05	4.4E–05	4.4E–05	ND	3.5E–06
cobalt	4.8E–03	2.1E–07	1.3E–06	4.9E–07	2.6E–04	2.9E–03	1.0E–03	2.7E–04	4.9E–05	NA	NA	NA	NA	NA	NA	NA
copper	ND	8.4E–06	1.7E–05	9.5E–06	2.1E–02	4.5E–02	2.4E–02	6.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.9E–06	3.1E–06	9.2E–06	4.3E–01	5.2E–01	1.5E+00	5.7E–03	9.4E–03	NA	3.3E–01	9.2E–02	4.3E–02	1.3E–01	ND	1.6E–02
manganese	9.9E–03	1.8E–05	3.9E–06	1.2E–05	1.0E–01	2.7E–02	8.7E–02	1.5E–02	4.0E–02	NA	7.4E–02	4.6E–02	5.0E–03	1.6E–02	ND	5.9E–03
mercury	6.3E–07	1.4E–06	1.0E–04	6.7E–07	1.2E–02	1.8E+00	1.2E–02	4.5E–04	1.2E–03	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.2E–06	7.7E–06	7.0E–06	2.1E–02	7.1E–02	6.4E–02	2.5E–03	5.4E–04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	7.3E–06	6.5E–06	3.9E–06	9.4E–03	8.7E–03	5.3E–03	1.1E–03	4.7E–05	NA	NA	NA	NA	NA	NA	NA
selenium	ND	4.7E–07	1.2E–06	1.1E–06	4.1E–04	1.1E–03	1.1E–03	1.2E–04	1.2E–05	NA	NA	NA	NA	NA	NA	NA
silver	ND	6.6E–06	9.4E–06	2.3E–04	4.0E–03	6.5E–03	1.6E–01	2.9E–04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.8E–06	6.1E–05	1.1E–05	6.2E–04	1.1E–01	2.1E–02	1.1E–02	9.3E–04	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	3.4E–04	7.2E–06	7.8E–05	4.9E–02	5.9E–03	6.5E–02	8.9E–02	1.5E–01	NA	6.2E+00	8.7E–01	1.2E–02	1.3E–01	ND	3.0E–01
vanadium	ND	3.4E–06	2.5E–06	7.1E–08	2.0E–03	3.5E–03	1.0E–04	5.0E–03	8.1E–04	NA	NA	NA	NA	NA	NA	NA
zinc	ND	9.6E–05	2.1E–03	7.7E–04	1.4E–01	3.1E+00	1.1E+00	1.1E–03	3.7E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	5.4E–10	9.0E–11	1.8E–10	1.9E–05	7.4E–06	1.5E–05	5.3E–06	1.9E–07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.2E–11	2.5E–15	3.1E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.0E–04	3.4E–05	4.0E–05	1.4E–05	7.9E–05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.5E–12	2.1E–10	3.8E–15	7.1E–15	4.8E–04	1.2E–08	2.2E–08	6.0E–07	1.5E–06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.6E–04	1.0E–04	1.2E–04	3.0E–05	1.7E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.9E–04	3.9E–06	4.5E–06	1.1E–04	9.4E–07	1.1E–06	2.0E–06	7.2E–06	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.2E–09	1.5E–08	1.7E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.6E–10	4.2E–11	4.9E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.5E–02	1.3E–03	2.5E–03	1.3E–03	1.0E+00	5.8E+00	3.2E+00	1.6E–01	2.1E–01		8.1E+00	1.7E+00	3.0E–01	3.6E–01	0.0E+00	3.4E–01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32d
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.5E–08	1.7E–13	1.9E–13	1.1E–01	8.2E–07	9.4E–07	3.3E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	4.4E–05	2.9E–05	1.1E–05	1.2E–01	1.1E–01	4.1E–02	3.0E–02	1.6E–02	NA	9.3E–02	4.8E–02	1.7E–02	6.0E–03	ND	1.5E–03
arsenic	ND	1.6E–05	1.2E–05	1.3E–06	NA	NA	NA	NA	NA	NA	2.4E–01	4.9E–02	1.8E–02	2.0E–03	ND	6.1E–04
barium	7.6E–05	2.5E–06	3.9E–07	3.3E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.1E–07	4.6E–08	1.5E–10	6.4E–05	1.1E–04	3.7E–07	3.1E–04	2.6E–03	NA	3.1E–04	5.5E–05	8.7E–06	2.9E–08	ND	7.3E–05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.6E–05	6.7E–06	4.4E–05	6.4E–02	1.7E–02	1.1E–01	3.1E–03	5.1E–03	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.4E–06	3.7E–06	3.7E–06	1.8E–03	5.2E–03	5.1E–03	3.0E–03	5.4E–04	NA	2.7E–02	7.5E–03	3.6E–03	3.6E–03	ND	2.9E–04
cobalt	2.5E–03	1.1E–07	6.9E–07	2.5E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.1E–06	8.5E–06	4.6E–06	1.4E–02	3.0E–02	1.7E–02	4.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.0E–06	1.6E–06	4.6E–06	1.5E–01	1.9E–01	5.4E–01	2.0E–03	3.3E–03	NA	1.8E+00	4.9E–01	2.3E–01	6.8E–01	ND	8.5E–02
manganese	5.2E–03	9.5E–06	2.0E–06	6.5E–06	NA	NA	NA	NA	NA	NA	1.2E–01	7.6E–02	8.3E–03	2.6E–02	ND	9.8E–03
mercury	3.5E–07	7.7E–07	5.7E–05	3.7E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.4E–06	3.4E–06	3.1E–06	1.5E–02	5.2E–02	4.7E–02	1.8E–03	4.0E–04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.4E–06	3.1E–06	1.9E–06	6.9E–03	6.3E–03	3.8E–03	8.4E–04	3.4E–05	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.9E–07	7.2E–07	7.0E–07	6.1E–04	1.7E–03	1.6E–03	1.8E–04	1.8E–05	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.5E–06	5.0E–06	1.2E–04	2.7E–02	4.3E–02	1.0E+00	1.9E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.4E–06	2.3E–05	4.2E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	3.0E–04	6.4E–06	7.0E–05	2.9E–03	3.5E–04	3.8E–03	5.2E–03	8.5E–03	NA	3.9E+01	5.4E+00	7.4E–02	8.3E–01	ND	1.8E+00
vanadium	ND	1.8E–06	1.3E–06	3.8E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.4E–05	5.4E–04	1.9E–04	2.9E–02	6.3E–01	2.3E–01	2.3E–04	7.6E–05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	1.4E–10	2.4E–11	4.8E–11	1.0E–05	3.9E–06	8.0E–06	2.8E–06	1.0E–07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.1E–12	4.4E–16	5.4E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.6E–13	3.4E–11	6.1E–16	1.1E–15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.2E–05	7.4E–06	8.5E–06	2.2E–06	1.3E–05	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.4E–04	9.4E–07	1.1E–06	1.9E–05	1.6E–07	1.8E–07	3.4E–07	1.2E–06	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.9E–10	3.7E–09	4.3E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.8E–10	3.4E–11	4.0E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	7.8E–03	5.9E–04	7.0E–04	4.8E–04	5.5E–01	1.1E+00	2.0E+00	4.9E–02	3.7E–02		4.1E+01	6.1E+00	3.5E–01	1.5E+00	0.0E+00	1.9E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32e
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.9E–08	1.2E–13	1.4E–13	8.2E–02	6.1E–07	7.0E–07	2.5E–05	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	5.3E–05	3.5E–05	1.3E–05	NA	NA	NA	NA	NA	NA	3.9E–01	2.0E–01	6.9E–02	2.5E–02	ND	6.2E–03
arsenic	ND	1.8E–05	1.4E–05	1.5E–06	NA	NA	NA	NA	NA	NA	2.2E–01	4.4E–02	1.6E–02	1.8E–03	ND	5.5E–04
barium	8.1E–05	2.7E–06	4.2E–07	3.5E–06	3.2E–03	6.9E–04	5.8E–03	1.6E–03	1.4E–04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.1E–07	4.6E–08	1.5E–10	7.8E–05	1.4E–04	4.5E–07	3.8E–04	3.1E–03	NA	2.9E–04	5.2E–05	8.1E–06	2.7E–08	ND	6.8E–05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.6E–05	6.7E–06	4.4E–05	3.0E–02	8.1E–03	5.3E–02	1.5E–03	2.4E–03	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.3E–06	3.5E–06	3.5E–06	NA	NA	NA	NA	NA	NA	2.1E–02	5.8E–03	2.8E–03	2.8E–03	ND	2.3E–04
cobalt	2.5E–03	1.1E–07	6.9E–07	2.5E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.9E–06	5.9E–06	3.2E–06	1.4E–02	3.1E–02	1.7E–02	4.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.7E–06	1.4E–06	3.9E–06	NA	NA	NA	NA	NA	NA	1.1E+00	3.1E–01	1.5E–01	4.3E–01	ND	5.4E–02
manganese	5.5E–03	1.0E–05	2.1E–06	6.8E–06	6.8E–02	1.9E–02	5.9E–02	9.9E–03	2.7E–02	NA	1.1E–01	6.7E–02	7.2E–03	2.3E–02	ND	8.6E–03
mercury	3.8E–07	8.4E–07	6.2E–05	4.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.3E–06	3.2E–06	2.9E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.4E–06	3.1E–06	1.9E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.5E–07	8.8E–07	8.5E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.5E–06	5.0E–06	1.2E–04	1.5E–03	2.4E–03	5.8E–02	1.1E–04	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.5E–06	2.4E–05	4.4E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	3.4E–04	7.3E–06	8.0E–05	1.9E–02	2.4E–03	2.6E–02	3.6E–02	5.8E–02	NA	2.7E+01	3.7E+00	5.1E–02	5.8E–01	ND	1.3E+00
vanadium	ND	1.7E–06	1.2E–06	3.6E–08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.3E–05	5.1E–04	1.9E–04	3.9E–02	8.6E–01	3.1E–01	3.2E–04	1.0E–04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	2.3E–10	3.8E–11	7.8E–11	1.4E–04	5.4E–05	1.1E–04	3.9E–05	1.4E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.4E–12	2.9E–16	3.6E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.9E–05	1.3E–05	1.5E–05	5.3E–06	3.0E–05	NA	NA	NA	NA	NA	NA	NA
methylene chloride	4.0E–13	2.4E–11	4.3E–16	7.9E–16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	3.0E–05	1.9E–05	2.2E–05	5.6E–06	3.2E–05	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.7E–04	1.1E–06	1.3E–06	1.3E–05	1.1E–07	1.2E–07	2.2E–07	8.1E–07	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.7E–10	3.5E–09	4.0E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.1E–10	3.7E–11	4.3E–11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	8.0E–03	6.7E–04	6.9E–04	4.8E–04	2.6E–01	9.3E–01	5.3E–01	5.0E–02	9.1E–02		2.9E+01	4.4E+00	2.9E–01	1.1E+00	0.0E+00	1.3E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32f
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.3E−08	1.5E−13	1.8E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.6E−04	1.0E−04	3.8E−05	3.5E−01	3.2E−01	1.2E−01	8.4E−02	4.6E−02	NA	1.5E+00	7.7E−01	2.6E−01	9.6E−02	ND	2.4E−02
arsenic	ND	5.6E−05	4.1E−05	4.5E−06	3.1E−02	6.7E−02	7.3E−03	3.7E−02	3.2E−04	NA	7.3E−02	1.5E−02	5.4E−03	5.9E−04	ND	1.8E−04
barium	1.0E−04	3.5E−06	5.4E−07	4.6E−06	2.3E−03	4.8E−04	4.1E−03	1.1E−03	1.0E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.6E−07	6.9E−08	2.3E−10	3.4E−05	6.0E−05	2.0E−07	1.7E−04	1.4E−03	NA	6.6E−05	1.2E−05	1.9E−06	6.2E−09	ND	1.6E−05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	7.4E−05	1.9E−05	1.3E−04	1.3E−01	3.6E−02	2.4E−01	6.5E−03	1.1E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	4.5E−06	6.9E−06	6.9E−06	2.1E−03	6.0E−03	5.9E−03	3.4E−03	6.3E−04	NA	3.1E−03	8.5E−04	4.1E−04	4.2E−04	ND	3.3E−05
cobalt	5.0E−03	2.2E−07	1.4E−06	5.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.7E−06	9.7E−06	5.3E−06	1.9E−02	4.2E−02	2.3E−02	5.6E−04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.9E−06	2.3E−06	6.8E−06	NA	NA	NA	NA	NA	NA	2.2E−01	6.0E−02	2.8E−02	8.3E−02	ND	1.0E−02
manganese	1.2E−02	2.1E−05	4.6E−06	1.5E−05	NA	NA	NA	NA	NA	NA	9.0E−02	5.5E−02	6.0E−03	1.9E−02	ND	7.1E−03
mercury	3.1E−07	6.8E−07	5.0E−05	3.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.0E−06	4.8E−06	4.4E−06	9.5E−03	3.3E−02	3.0E−02	1.2E−03	2.5E−04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	7.8E−06	6.9E−06	4.2E−06	1.0E−02	9.5E−03	5.7E−03	1.3E−03	5.1E−05	NA	NA	NA	NA	NA	NA	NA
selenium	ND	5.3E−07	1.3E−06	1.3E−06	6.4E−04	1.8E−03	1.7E−03	1.9E−04	1.9E−05	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.6E−06	1.2E−05	3.0E−04	1.4E−02	2.2E−02	5.4E−01	1.0E−03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	4.3E−06	6.8E−05	1.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.0E−04	2.1E−06	2.3E−05	1.6E−02	2.0E−03	2.2E−02	3.0E−02	4.9E−02	NA	7.3E−01	1.0E−01	1.4E−03	1.6E−02	ND	3.5E−02
vanadium	ND	3.4E−06	2.4E−06	7.1E−08	1.6E−03	2.7E−03	7.9E−05	3.9E−03	6.4E−04	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.7E−05	8.3E−04	3.0E−04	3.6E−02	8.1E−01	2.9E−01	3.0E−04	9.7E−05	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.3E−10	2.1E−11	4.4E−11	7.3E−04	2.9E−04	5.8E−04	2.1E−04	7.5E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.7E−12	3.5E−16	4.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.1E−04	1.7E−04	2.0E−04	7.0E−05	4.0E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.6E−13	3.4E−11	6.1E−16	1.1E−15	4.1E−04	1.0E−08	1.9E−08	5.1E−07	1.3E−06	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.4E−04	3.4E−04	3.9E−04	1.0E−04	5.8E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.2E−03	7.8E−06	9.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.6E−10	3.3E−09	3.8E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.3E−10	3.0E−11	3.5E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.7E−02	1.7E−03	1.2E−03	8.6E−04	6.2E−01	1.3E+00	1.3E+00	1.7E−01	1.1E−01		2.6E+00	1.0E+00	3.1E−01	2.2E−01	0.0E+00	7.6E−02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–32g
HAZARD QUOTIENTS FOR CT ON–PROPERTY FARMER
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.5E−08	2.9E−13	3.4E−13	3.7E−01	2.7E−06	3.2E−06	1.1E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	6.5E−05	4.4E−05	1.6E−05	4.7E−02	4.3E−02	1.6E−02	1.1E−02	6.3E−03	NA	9.3E−02	4.8E−02	1.7E−02	6.0E−03	ND	1.5E−03
arsenic	ND	2.4E−05	1.8E−05	1.9E−06	4.1E−02	8.9E−02	9.7E−03	5.0E−02	4.3E−04	NA	2.4E−01	4.9E−02	1.8E−02	2.0E−03	ND	6.1E−04
barium	1.0E−04	3.4E−06	5.2E−07	4.5E−06	2.9E−03	6.2E−04	5.2E−03	1.4E−03	1.3E−04	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.4E−07	6.2E−08	2.0E−10	3.3E−05	5.9E−05	1.9E−07	1.6E−04	1.3E−03	NA	3.1E−04	5.5E−05	8.7E−06	2.9E−08	ND	7.3E−05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	4.0E−05	1.0E−05	6.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.6E−06	5.6E−06	5.5E−06	5.9E−03	1.7E−02	1.6E−02	9.6E−03	1.7E−03	NA	2.7E−02	7.5E−03	3.6E−03	3.6E−03	ND	2.9E−04
cobalt	3.6E−03	1.6E−07	1.0E−06	3.7E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	7.8E−06	1.6E−05	8.7E−06	1.9E−02	4.1E−02	2.2E−02	5.5E−04	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.1E−06	2.6E−06	7.4E−06	NA	NA	NA	NA	NA	NA	1.8E+00	4.9E−01	2.3E−01	6.8E−01	ND	8.5E−02
manganese	7.6E−03	1.4E−05	2.9E−06	9.4E−06	5.1E−02	1.4E−02	4.4E−02	7.4E−03	2.0E−02	NA	1.2E−01	7.6E−02	8.3E−03	2.6E−02	ND	9.8E−03
mercury	4.8E−07	1.1E−06	7.8E−05	5.1E−07	6.4E−01	9.6E+01	6.3E−01	2.3E−02	6.4E−02	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.4E−06	5.7E−06	5.2E−06	1.6E−02	5.3E−02	4.9E−02	1.9E−03	4.1E−04	NA	NA	NA	NA	NA	NA	NA
nickel	ND	5.0E−06	4.4E−06	2.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.4E−07	8.4E−07	8.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	5.6E−06	7.9E−06	1.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.2E−06	3.6E−05	6.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	3.0E−04	6.4E−06	7.0E−05	3.9E−03	4.7E−04	5.1E−03	7.0E−03	1.2E−02	NA	3.9E+01	5.4E+00	7.4E−02	8.3E−01	ND	1.8E+00
vanadium	ND	2.7E−06	1.9E−06	5.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.5E−05	7.8E−04	2.8E−04	4.0E−02	8.9E−01	3.2E−01	3.3E−04	1.1E−04	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.5E−10	2.6E−11	5.3E−11	1.2E−05	4.8E−06	9.7E−06	3.5E−06	1.3E−07	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.5E−12	5.1E−16	6.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.4E−13	4.5E−11	8.0E−16	1.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroaniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.1E−10	4.0E−09	4.6E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.8E−10	3.4E−11	4.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.1E−02	5.2E−04	1.0E−03	6.8E−04	1.2E+00	9.7E+01	1.1E+00	1.1E−01	1.1E−01		4.1E+01	6.1E+00	3.5E−01	1.5E+00	0.0E+00	1.9E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33a
ILCRs FOR ON–PROPERTY CHILD
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.0E−13	9.7E−12	1.5E−11	1.3E−10	3.6E−08	1.4E−07	1.1E−06	1.1E−08	NA	5.6E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.4E−10	3.1E−11	2.5E−13	5.4E−13	3.8E−08	1.5E−09	3.2E−09	3.4E−08	NA	4.9E−07	2.7E−08	8.5E−09	3.9E−11	8.5E−11	NA	NA
Pu_{238}	5.2E−09	7.7E−10	2.5E−14	1.2E−13	1.8E−09	1.4E−11	6.4E−11	3.6E−07	NA	3.4E−10	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	7.1E−10	1.1E−10	9.3E−15	4.4E−14	5.3E−10	3.9E−12	1.9E−11	1.0E−07	NA	9.1E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.9E−08	6.4E−08	3.2E−09	1.4E−07	1.4E−07	3.6E−08	1.5E−06	8.0E−07	NA	4.6E−05	5.3E−06	1.7E−06	3.5E−08	1.5E−06	4.2E−07	NA
Ru_{106}	4.7E−12	2.6E−12	2.3E−13	1.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.4E−12	3.5E−11	2.8E−12	3.3E−10	6.6E−07	1.3E−07	1.5E−05	2.3E−08	NA	ND	2.5E−08	1.1E−08	5.2E−10	6.1E−08	NA	NA
Tc_{99}	1.0E−12	4.7E−12	3.3E−12	9.2E−11	5.0E−07	1.7E−06	4.7E−05	2.9E−09	NA	1.0E−11	9.0E−06	2.7E−06	1.2E−06	3.4E−05	NA	NA
Th_{230}	1.7E−07	2.0E−09	2.3E−12	4.5E−11	3.3E−09	1.6E−10	3.2E−09	3.5E−07	NA	1.1E−08	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.9E−08	2.0E−09	2.3E−12	4.4E−11	1.8E−08	9.1E−10	1.8E−08	1.9E−06	NA	7.1E−04	NA	NA	NA	NA	NA	NA
U_{234}	3.9E−07	6.3E−09	6.6E−11	4.6E−09	1.3E−06	7.8E−08	5.5E−06	2.9E−06	NA	4.1E−08	3.2E−05	8.4E−06	5.5E−08	4.0E−06	NA	NA
$U_{235/236}$	3.1E−08	5.2E−10	5.4E−12	3.8E−10	1.1E−07	6.6E−09	4.6E−07	2.5E−07	NA	2.7E−05	1.4E−06	3.8E−07	2.5E−09	1.8E−07	NA	NA
U_{238+2d}	8.6E−07	1.2E−08	1.3E−10	8.9E−09	3.0E−06	1.8E−07	1.2E−05	6.5E−06	NA	6.2E−05	5.4E−05	1.4E−05	9.5E−08	6.9E−06	NA	NA
Rn_{222+4d}	3.2E−07	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.9E−06	8.8E−08	3.4E−09	1.5E−07	5.8E−06	2.3E−06	8.3E−05	1.3E−05		8.5E−04	1.0E−04	2.7E−05	1.4E−06	4.6E−05	4.2E−07	
Chemicals																
arsenic	6.0E−09	2.5E−08	8.9E−09	6.2E−09	1.4E−05	1.5E−05	1.1E−05	2.1E−05	2.2E−07	NA	9.3E−05	3.5E−05	6.3E−06	4.5E−06	ND	2.0E−07
beryllium	3.7E−10	6.2E−09	1.3E−09	2.8E−11	9.6E−07	8.2E−07	1.7E−08	5.6E−06	5.6E−06	NA	1.0E−09	3.4E−10	2.6E−11	5.6E−13	ND	2.0E−10
cadmium	1.0E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	3.5E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	7.9E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.2E−17	5.4E−16	9.6E−20	7.2E−19	2.1E−08	4.4E−12	3.3E−11	8.4E−11	4.7E−13	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.3E−13	1.0E−14	1.4E−13	1.3E−08	2.4E−09	3.2E−08	4.4E−09	2.0E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	3.2E−13	1.6E−15	1.2E−14	1.3E−07	7.2E−10	5.3E−09	3.3E−09	1.1E−08	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.3E−16	5.7E−16	5.7E−20	4.6E−19	1.9E−08	2.4E−12	1.9E−11	6.2E−11	1.9E−10	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	6.7E−07	1.2E−10	9.6E−10	2.7E−09	9.1E−09	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	1.5E−09	2.9E−13	2.2E−12	5.7E−12	1.9E−11	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.8E−16	6.6E−14	5.7E−19	6.7E−18	9.9E−08	1.2E−12	1.4E−11	1.5E−10	4.4E−10	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	6.0E−14	1.8E−16	1.4E−15	8.9E−08	3.6E−10	3.0E−09	2.3E−09	7.5E−09	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	1.9E−12	4.1E−17	3.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.5E−10	2.3E−07	7.3E−10	5.5E−09	6.0E−08	2.4E−10	1.8E−09	1.3E−09	5.6E−09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.5E−09	1.6E−07	5.8E−11	4.3E−10	4.5E−08	1.8E−11	1.3E−10	2.5E−10	7.8E−10	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.1E−12	7.0E−12	4.0E−12	3.0E−11	3.9E−07	4.2E−07	3.1E−06	1.6E−07	1.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.6E−11	5.0E−10	7.8E−10	5.8E−09	1.2E−05	4.5E−05	3.3E−04	9.1E−06	9.1E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.0E−12	6.4E−11	1.0E−10	7.7E−10	1.5E−06	6.1E−06	4.5E−05	1.2E−06	1.2E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.9E−13	2.2E−11	2.0E−10	1.5E−09	2.0E−07	7.2E−06	5.4E−05	4.0E−07	4.0E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.4E−14	4.8E−13	2.8E−13	2.1E−12	2.4E−08	2.6E−08	1.9E−07	1.0E−08	1.0E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.6E−12	1.5E−10	1.3E−09	9.4E−09	1.4E−06	5.1E−05	3.8E−04	2.9E−06	2.9E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.9E−12	8.9E−11	4.2E−10	3.1E−09	1.4E−06	2.3E−05	1.7E−04	2.1E−06	2.1E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.6E−09	9.4E−09	6.9E−08	2.8E−05	8.5E−05	6.3E−04	1.9E−05	1.5E−05	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	1.5E−11	7.6E−10	5.6E−09	1.5E−06	1.5E−04	1.1E−03	4.6E−06	3.7E−06	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.2E−13	1.4E−12	1.0E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	1.0E−13	6.8E−14	5.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.3E−15	8.6E−14	3.6E−14	2.7E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	5.3E−14	1.5E−12	6.5E−14	4.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	1.6E−09	2.2E−06	1.8E−05	1.5E−08	9.0E−09	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.4E−14	1.3E−12	4.5E−10	3.8E−09	2.3E−10	3.4E−06	2.9E−05	5.2E−09	3.1E−09	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.5E−14	3.7E−13	1.9E−10	1.6E−09	2.1E−10	6.1E−06	5.1E−05	6.1E−09	3.7E−09	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	4.5E−08	4.3E−07	2.4E−08	1.1E−07	6.2E−05	4.0E−04	2.8E−03	6.6E−05	4.1E−05		9.3E−05	3.5E−05	6.3E−06	4.5E−06	0.0E+00	2.0E−07
Sum Chem (BaP for PAHs):	4.5E−08	4.3E−07	3.0E−08	1.5E−07	8.8E−05	6.3E−04	4.6E−03	9.0E−05	6.5E−05		9.3E−05	3.5E−05	6.3E−06	4.5E−06	0.0E+00	2.0E−07
TOTAL ALL (TEF Approach):	1.9E−06	5.1E−07	2.8E−08	2.6E−07	6.8E−05	4.0E−04	2.9E−03	7.9E−05	4.1E−05	8.5E−04	1.9E−04	6.3E−05	7.7E−06	5.1E−05	4.2E−07	2.0E−07
TOTAL ALL (BaP Approach):	1.9E−06	5.1E−07	3.3E−08	3.0E−07	9.4E−05	6.3E−04	4.7E−03	1.0E−04	6.5E−05	8.5E−04	1.9E−04	6.3E−05	7.7E−06	5.1E−05	4.2E−07	2.0E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33b
ILCRs FOR ON–PROPERTY CHILD
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	2.3E−14	1.1E−12	1.8E−12	1.5E−11	3.1E−08	1.2E−07	9.7E−07	9.1E−09	NA	4.8E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	9.1E−12	2.1E−12	1.7E−14	3.6E−14	8.5E−08	3.3E−09	7.0E−09	7.5E−08	NA	1.1E−06	1.1E−09	3.5E−10	1.6E−12	3.5E−12	NA	NA
Pu_{238}	2.9E−10	4.2E−11	1.4E−15	6.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	6.9E−11	1.1E−11	9.0E−16	4.2E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	1.8E−09	6.0E−09	3.0E−10	1.3E−08	NA	NA	NA	NA	NA	NA	5.3E−06	1.7E−06	3.6E−08	1.5E−06	4.2E−07	NA
Ru_{106}	6.1E−13	3.4E−13	3.0E−14	2.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	1.3E−13	3.1E−12	2.5E−13	3.0E−11	6.0E−07	1.2E−07	1.4E−05	2.1E−08	NA	ND	1.0E−11	4.7E−12	2.2E−13	2.6E−11	NA	NA
Tc_{99}	1.3E−13	5.9E−13	4.2E−13	1.2E−11	1.5E−07	5.1E−07	1.4E−05	8.7E−10	NA	3.0E−12	3.4E−07	9.9E−08	4.5E−08	1.3E−06	NA	NA
Th_{230}	7.9E−09	9.4E−11	1.1E−13	2.1E−12	9.2E−11	4.5E−12	8.8E−11	9.6E−09	NA	2.9E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	3.2E−09	1.3E−10	1.5E−13	2.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	2.0E−08	3.3E−10	3.4E−12	2.4E−10	1.2E−08	7.2E−10	5.1E−08	2.7E−08	NA	3.7E−10	7.3E−08	1.9E−08	1.3E−10	9.3E−09	NA	NA
$U_{235/236}$	1.7E−09	2.9E−11	3.0E−13	2.1E−11	2.1E−09	1.3E−10	8.9E−09	4.7E−09	NA	5.2E−07	3.3E−09	8.8E−10	5.8E−12	4.2E−10	NA	NA
U_{238+2d}	4.9E−08	7.0E−10	7.2E−12	5.1E−10	2.7E−08	1.6E−09	1.1E−07	6.0E−08	NA	5.7E−07	1.2E−07	3.3E−08	2.2E−10	1.6E−08	NA	NA
Rn_{222+4d}	5.0E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.3E−07	7.3E−09	3.1E−10	1.4E−08	9.1E−07	7.5E−07	2.9E−05	2.1E−07		7.0E−06	5.9E−06	1.8E−06	8.1E−08	2.8E−06	4.2E−07	
Chemicals																
arsenic	1.6E−09	6.5E−09	2.3E−09	1.6E−09	NA	NA	NA	NA	NA	NA	1.3E−05	5.0E−06	8.9E−07	6.3E−07	ND	2.7E−08
beryllium	9.2E−11	1.5E−09	3.3E−10	6.9E−12	1.3E−06	1.1E−06	2.3E−08	7.5E−06	7.5E−06	NA	9.2E−21	3.1E−21	2.4E−22	5.1E−24	ND	1.8E−21
cadmium	3.8E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.5E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	4.0E−18	1.9E−16	3.3E−20	2.5E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.1E−14	2.5E−15	3.3E−14	2.7E−08	5.0E−09	6.6E−08	9.1E−09	4.0E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.4E−14	1.2E−16	8.8E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−17	1.2E−16	1.2E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.7E−17	4.2E−15	3.6E−20	4.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.1E−14	3.2E−17	2.6E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	6.2E−13	1.3E−17	1.1E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	1.2E−09	1.1E−06	3.5E−09	2.6E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	6.9E−09	7.7E−07	2.7E−10	2.0E−09	8.6E−09	3.4E−12	2.6E−11	4.8E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	2.6E−13	8.7E−13	4.9E−13	3.7E−12	1.4E−08	1.5E−08	1.1E−07	5.8E−09	5.8E−09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.1E−12	6.7E−11	1.0E−10	7.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.2E−13	1.0E−11	1.6E−11	1.2E−10	7.0E−08	2.8E−07	2.1E−06	5.5E−08	5.5E−08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.2E−13	3.7E−12	3.4E−11	2.6E−10	1.2E−08	4.5E−07	3.3E−06	2.5E−08	2.5E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.2E−15	7.3E−14	4.3E−14	3.2E−13	1.4E−09	1.6E−09	1.2E−08	6.2E−10	6.2E−10	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	6.7E−13	2.1E−11	1.8E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.7E−13	1.4E−11	6.7E−11	5.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	2.5E−10	6.6E−10	4.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	5.3E−12	2.6E−10	1.9E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.1E−14	2.6E−13	1.9E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	5.8E−15	3.8E−15	2.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.6E−16	1.2E−14	5.0E−15	3.7E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	4.5E−15	1.2E−13	5.5E−15	4.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.1E−14	2.6E−13	8.9E−11	7.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	5.1E−15	1.2E−13	6.4E−11	5.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.9E−08	1.9E−06	7.9E−09	4.1E−08	1.4E−06	1.8E−06	5.6E−06	7.6E−06	7.6E−06		1.3E−05	5.0E−06	8.9E−07	6.3E−07	0.0E+00	2.7E−08
Sum Chem (BaP for PAHs):	1.9E−08	1.9E−06	8.9E−09	4.8E−08	2.5E−06	1.2E−05	8.4E−05	8.7E−06	8.6E−06		1.3E−05	5.0E−06	8.9E−07	6.3E−07	0.0E+00	2.7E−08
TOTAL ALL (TEF Approach):	1.5E−07	1.9E−06	8.3E−09	5.5E−08	2.3E−06	2.6E−06	3.4E−05	7.8E−06	7.6E−06	7.0E−06	1.9E−05	6.8E−06	9.7E−07	3.4E−06	4.2E−07	2.7E−08
TOTAL ALL (BaP Approach):	1.5E−07	1.9E−06	9.2E−09	6.2E−08	3.5E−06	1.3E−05	1.1E−04	8.9E−06	8.6E−06	7.0E−06	1.9E−05	6.8E−06	9.7E−07	3.4E−06	4.2E−07	2.7E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33c
ILCRs FOR ON–PROPERTY CHILD
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	8.5E−14	4.2E−12	6.6E−12	5.4E−11	3.2E−08	1.2E−07	1.0E−06	9.4E−09	NA	5.0E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	3.0E−11	6.9E−12	5.6E−14	1.2E−13	NA	NA	NA	NA	NA	NA	9.2E−09	2.9E−09	1.3E−11	2.9E−11	NA	NA
Pu_{238}	9.7E−10	1.4E−10	4.7E−15	2.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	2.1E−10	3.3E−11	2.8E−15	1.3E−14	1.3E−10	9.5E−13	4.5E−12	2.5E−08	NA	2.2E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.4E−08	8.0E−08	4.0E−09	1.7E−07	2.4E−08	6.3E−09	2.7E−07	1.4E−07	NA	8.0E−06	5.5E−06	1.7E−06	3.6E−08	1.6E−06	4.3E−07	NA
Ru_{106}	8.7E−13	4.8E−13	4.3E−14	3.1E−16	2.2E−08	1.1E−08	8.1E−11	1.0E−08	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.9E−13	2.1E−11	1.7E−12	2.0E−10	1.1E−06	2.1E−07	2.5E−05	3.9E−08	NA	ND	6.1E−10	2.8E−10	1.3E−11	1.5E−09	NA	NA
Tc_{99}	1.2E−12	5.3E−12	3.8E−12	1.0E−10	NA	NA	NA	NA	NA	NA	2.9E−06	8.6E−07	3.9E−07	1.1E−05	NA	NA
Th_{230}	2.1E−07	2.5E−09	2.8E−12	5.5E−11	1.0E−10	5.0E−12	9.7E−11	1.1E−08	NA	3.3E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.5E−08	1.0E−09	1.2E−12	2.3E−11	1.6E−08	7.7E−10	1.5E−08	1.6E−06	NA	6.1E−04	NA	NA	NA	NA	NA	NA
U_{234}	1.2E−07	1.9E−09	2.0E−11	1.4E−09	6.4E−09	3.8E−10	2.6E−08	1.4E−08	NA	2.0E−10	1.7E−05	4.4E−06	2.9E−08	2.1E−06	NA	NA
$U_{235/236}$	8.5E−09	1.4E−10	1.5E−12	1.0E−10	3.8E−08	2.2E−09	1.6E−07	8.3E−08	NA	9.3E−06	7.6E−07	2.0E−07	1.3E−09	9.7E−08	NA	NA
U_{238+2d}	2.4E−07	3.3E−09	3.5E−11	2.4E−09	1.4E−08	8.5E−10	5.9E−08	3.2E−08	NA	3.0E−07	2.9E−05	7.6E−06	5.0E−08	3.7E−06	NA	NA
Rn_{222+4d}	1.8E−07	ND	ND	ND	ND	ND	ND	ND	NA	ND	NA	NA	NA	NA	NA	NA
Total Radionuclides	8.1E−07	8.9E−08	4.1E−09	1.7E−07	1.3E−06	3.6E−07	2.7E−05	2.0E−06		6.3E−04	5.5E−05	1.5E−05	5.1E−07	1.8E−05	4.3E−07	
Chemicals																
arsenic	2.9E−09	1.2E−08	4.4E−09	3.1E−09	NA	NA	NA	NA	NA	NA	4.4E−05	1.7E−05	3.0E−06	2.2E−06	ND	9.4E−08
beryllium	2.0E−10	3.4E−09	7.2E−10	1.5E−11	7.8E−07	6.6E−07	1.4E−08	4.6E−06	4.6E−06	NA	3.8E−14	1.3E−14	9.9E−16	2.1E−17	ND	7.5E−15
cadmium	6.3E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.8E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	4.2E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	1.7E−17	8.2E−16	1.4E−19	1.1E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.2E−13	1.0E−14	1.3E−13	4.3E−09	8.1E−10	1.1E−08	1.5E−09	6.5E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	2.9E−13	1.4E−15	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.4E−16	6.0E−16	6.0E−20	4.8E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	7.1E−16	8.0E−14	6.9E−19	8.2E−18	1.8E−07	2.2E−12	2.6E−11	2.7E−10	8.1E−10	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	1.7E−14	4.9E−17	4.0E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	2.7E−12	5.8E−17	4.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	2.7E−10	2.5E−07	8.0E−10	6.0E−09	4.8E−08	1.9E−10	1.4E−09	1.0E−09	4.5E−09	NA	NA	NA	NA	NA	NA	NA
trichloroethene	1.6E−09	1.8E−07	6.5E−11	4.8E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	1.5E−12	5.1E−12	2.9E−12	2.1E−11	1.0E−07	1.1E−07	8.4E−07	4.4E−08	4.4E−08	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.3E−11	4.0E−10	6.2E−10	4.6E−09	3.0E−06	1.1E−05	8.3E−05	2.3E−06	2.3E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	1.5E−12	4.7E−11	7.7E−11	5.7E−10	1.2E−06	4.9E−06	3.7E−05	9.8E−07	9.8E−07	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	6.7E−13	2.1E−11	1.9E−10	1.4E−09	3.6E−08	1.3E−06	9.8E−06	7.3E−08	7.3E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	9.6E−15	3.2E−13	1.8E−13	1.4E−12	1.1E−08	1.2E−08	8.8E−08	4.7E−09	4.7E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	4.2E−12	1.3E−10	1.1E−09	8.5E−09	1.6E−07	5.7E−06	4.2E−05	3.2E−07	3.2E−07	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	2.2E−12	6.8E−11	3.2E−10	2.4E−09	2.2E−07	3.5E−06	2.6E−05	3.1E−07	3.1E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.9E−09	4.9E−09	3.6E−08	1.8E−07	5.5E−07	4.1E−06	1.2E−07	9.9E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.4E−11	1.2E−09	8.6E−09	3.7E−07	3.7E−05	2.8E−04	1.1E−06	9.1E−07	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.6E−13	1.0E−12	7.4E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.1E−14	1.4E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	6.8E−16	1.8E−14	7.4E−15	5.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	1.1E−14	3.0E−13	1.3E−14	9.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	2.2E−14	5.3E−13	1.8E−10	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.2E−14	5.4E−13	2.8E−10	2.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.4E−08	4.5E−07	1.5E−08	7.6E−08	6.3E−06	6.5E−05	4.8E−04	9.8E−06	9.6E−06		4.4E−05	1.7E−05	3.0E−06	2.2E−06	0.0E+00	9.4E−08
Sum Chem (BaP for PAHs):	2.4E−08	4.5E−07	2.0E−08	1.1E−07	1.9E−05	1.4E−04	1.0E−03	2.0E−05	2.0E−05		4.4E−05	1.7E−05	3.0E−06	2.2E−06	0.0E+00	9.4E−08
TOTAL ALL (TEF Approach):	8.3E−07	5.4E−07	1.9E−08	2.5E−07	7.6E−06	6.6E−05	5.1E−04	1.2E−05	9.6E−06	6.3E−04	9.9E−05	3.2E−05	3.5E−06	2.0E−05	4.3E−07	9.4E−08
TOTAL ALL (BaP Approach):	8.3E−07	5.4E−07	2.4E−08	2.9E−07	2.1E−05	1.4E−04	1.0E−03	2.2E−05	2.0E−05	6.3E−04	9.9E−05	3.2E−05	3.5E−06	2.0E−05	4.3E−07	9.4E−08

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33d
ILCRs FOR ON–PROPERTY CHILD
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.8E−14	1.9E−12	3.0E−12	2.4E−11	2.1E−08	7.9E−08	6.5E−07	6.0E−09	NA	3.2E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	1.9E−11	4.4E−12	3.5E−14	7.5E−14	NA	NA	NA	NA	NA	NA	2.8E−07	8.9E−08	4.1E−10	8.9E−10	NA	NA
Pu_{238}	1.3E−09	1.9E−10	6.3E−15	3.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.5E−10	2.4E−11	2.0E−15	9.3E−15	3.0E−10	2.2E−12	1.0E−11	5.8E−08	NA	5.0E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.5E−09	1.2E−08	6.0E−10	2.5E−08	NA	NA	NA	NA	NA	NA	2.6E−05	8.3E−06	1.8E−07	7.5E−06	2.1E−06	NA
Ru_{106}	4.3E−13	2.4E−13	2.1E−14	1.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.1E−13	7.5E−12	6.1E−13	7.1E−11	9.1E−07	1.8E−07	2.1E−05	3.2E−08	NA	ND	1.0E−06	4.6E−07	2.1E−08	2.5E−06	NA	NA
Tc_{99}	3.5E−13	1.6E−12	1.1E−12	3.1E−11	NA	NA	NA	NA	NA	NA	1.9E−05	5.5E−06	2.5E−06	7.0E−05	NA	NA
Th_{230}	5.6E−08	6.6E−10	7.5E−13	1.5E−11	9.4E−11	4.6E−12	9.0E−11	9.8E−09	NA	3.0E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.4E−08	5.7E−10	6.4E−13	1.3E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	9.3E−08	1.5E−09	1.6E−11	1.1E−09	2.0E−08	1.2E−09	8.5E−08	4.5E−08	NA	6.3E−10	1.0E−04	2.8E−05	1.8E−07	1.3E−05	NA	NA
$U_{235/236}$	6.8E−09	1.2E−10	1.2E−12	8.4E−11	2.4E−09	1.4E−10	1.0E−08	5.4E−09	NA	6.0E−07	4.7E−06	1.3E−06	8.3E−09	6.0E−07	NA	NA
U_{238+2d}	2.0E−07	2.8E−09	2.9E−11	2.0E−09	2.5E−08	1.5E−09	1.0E−07	5.5E−08	NA	5.2E−07	1.8E−04	4.7E−05	3.1E−07	2.3E−05	NA	NA
Rn_{222+4d}	2.2E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	3.9E−07	1.8E−08	6.5E−10	2.9E−08	9.8E−07	2.6E−07	2.1E−05	2.1E−07		4.3E−06	3.3E−04	9.0E−05	3.2E−06	1.2E−04	2.1E−06	
Chemicals																
arsenic	1.6E−09	6.8E−09	2.4E−09	1.7E−09	NA	NA	NA	NA	NA	NA	5.5E−05	2.1E−05	3.7E−06	2.6E−06	ND	1.1E−07
beryllium	1.1E−10	1.8E−09	3.9E−10	8.3E−12	1.1E−06	9.6E−07	2.0E−08	6.6E−06	6.6E−06	NA	2.8E−06	9.6E−07	7.3E−08	1.6E−09	ND	5.6E−07
cadmium	2.7E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.7E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.0E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.1E−18	9.7E−17	1.7E−20	1.3E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.3E−14	2.6E−15	3.4E−14	2.3E−09	4.3E−10	5.7E−09	7.8E−10	3.5E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	7.1E−14	3.5E−16	2.6E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.2E−17	1.1E−16	1.1E−20	8.4E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−16	1.3E−14	1.1E−19	1.3E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	5.2E−15	1.5E−17	1.2E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	3.4E−13	7.3E−18	5.8E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	6.6E−11	6.0E−08	1.9E−10	1.4E−09	8.1E−09	3.3E−11	2.4E−10	1.7E−10	7.6E−10	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.9E−10	4.4E−08	1.6E−11	1.2E−10	4.3E−09	1.7E−12	1.3E−11	2.4E−11	7.4E−11	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.7E−13	1.2E−12	7.0E−13	5.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.8E−12	8.8E−11	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.5E−13	1.1E−11	1.8E−11	1.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−13	4.0E−12	3.7E−11	2.7E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.5E−15	8.3E−14	4.8E−14	3.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	8.4E−13	2.6E−11	2.3E−10	1.7E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.1E−13	1.6E−11	7.4E−11	5.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.4E−10	1.9E−09	1.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.8E−12	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.0E−14	2.5E−13	1.8E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.1E−14	1.4E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.9E−16	1.0E−14	4.3E−15	3.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.8E−15	2.4E−13	1.1E−14	8.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.2E−15	1.3E−13	4.3E−11	3.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.7E−15	6.6E−14	3.4E−11	2.9E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E−08	1.1E−07	5.7E−09	2.3E−08	1.1E−06	9.6E−07	2.6E−08	6.6E−06	6.6E−06		5.7E−05	2.2E−05	3.8E−06	2.6E−06	0.0E+00	6.8E−07
Sum Chem (BaP for PAHs):	1.1E−08	1.1E−07	6.7E−09	3.0E−08	1.1E−06	9.6E−07	2.6E−08	6.6E−06	6.6E−06		5.7E−05	2.2E−05	3.8E−06	2.6E−06	0.0E+00	6.8E−07
TOTAL ALL (TEF Approach):	4.0E−07	1.3E−07	6.3E−09	5.2E−08	2.1E−06	1.2E−06	2.1E−05	6.8E−06	6.6E−06	4.3E−06	3.9E−04	1.1E−04	7.0E−06	1.2E−04	2.1E−06	6.8E−07
TOTAL ALL (BaP Approach):	4.0E−07	1.3E−07	7.3E−09	5.9E−08	2.1E−06	1.2E−06	2.1E−05	6.8E−06	6.6E−06	4.3E−06	3.9E−04	1.1E−04	7.0E−06	1.2E−04	2.1E−06	6.8E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33e
ILCRs FOR ON–PROPERTY CHILD
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.9E−14	1.9E−12	3.0E−12	2.5E−11	3.1E−08	1.2E−07	9.7E−07	9.1E−09	NA	4.8E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.3E−11	5.2E−12	4.2E−14	8.9E−14	NA	NA	NA	NA	NA	NA	2.2E−07	6.9E−08	3.2E−10	7.0E−10	NA	NA
Pu_{238}	1.6E−09	2.3E−10	7.5E−15	3.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	1.8E−10	2.8E−11	2.3E−15	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	2.9E−09	1.0E−08	5.0E−10	2.1E−08	NA	NA	NA	NA	NA	NA	2.2E−05	7.1E−06	1.5E−07	6.4E−06	1.8E−06	NA
Ru_{106}	7.1E−13	3.9E−13	3.5E−14	2.5E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	3.0E−13	7.2E−12	5.8E−13	6.8E−11	6.9E−07	1.3E−07	1.5E−05	2.4E−08	NA	ND	6.8E−07	3.1E−07	1.4E−08	1.7E−06	NA	NA
Tc_{99}	2.1E−13	9.4E−13	6.7E−13	1.9E−11	1.2E−07	4.2E−07	1.1E−05	7.1E−10	NA	2.4E−12	1.3E−05	3.9E−06	1.8E−06	5.0E−05	NA	NA
Th_{230}	5.8E−08	6.8E−10	7.7E−13	1.5E−11	1.2E−10	5.9E−12	1.2E−10	1.3E−08	NA	3.9E−10	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	1.2E−08	4.8E−10	5.4E−13	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	9.8E−08	1.6E−09	1.6E−11	1.2E−09	5.9E−08	3.5E−09	2.4E−07	1.3E−07	NA	1.8E−09	7.2E−05	1.9E−05	1.3E−07	9.2E−06	NA	NA
$U_{235/236}$	7.9E−09	1.3E−10	1.4E−12	9.7E−11	7.5E−09	4.4E−10	3.1E−08	1.6E−08	NA	1.8E−06	3.3E−06	8.7E−07	5.8E−09	4.2E−07	NA	NA
U_{238+2d}	2.2E−07	3.1E−09	3.2E−11	2.3E−09	1.9E−07	1.1E−08	8.0E−07	4.2E−07	NA	4.0E−06	1.2E−04	3.3E−05	2.2E−07	1.6E−05	NA	NA
Rn_{222+4d}	1.7E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.2E−07	1.6E−08	5.6E−10	2.5E−08	1.1E−06	6.8E−07	2.9E−05	6.2E−07		1.1E−05	2.4E−04	6.4E−05	2.3E−06	8.3E−05	1.8E−06	
Chemicals																
arsenic	1.9E−09	7.8E−09	2.8E−09	2.0E−09	NA	NA	NA	NA	NA	NA	4.9E−05	1.9E−05	3.4E−06	2.4E−06	ND	1.0E−07
beryllium	1.1E−10	1.8E−09	3.9E−10	8.3E−12	1.4E−06	1.2E−06	2.5E−08	8.0E−06	8.0E−06	NA	2.6E−06	9.0E−07	6.9E−08	1.5E−09	ND	5.3E−07
cadmium	2.7E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	8.3E−09	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND
nickel	2.0E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	1.8E−18	8.2E−17	1.5E−20	1.1E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.3E−14	4.2E−15	5.6E−14	3.2E−08	6.0E−09	7.8E−08	1.1E−08	4.8E−10	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.8E−14	2.4E−16	1.8E−15	6.3E−09	3.4E−11	2.5E−10	1.5E−10	5.1E−10	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	2.8E−17	7.1E−17	7.1E−21	5.6E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	8.0E−17	9.0E−15	7.7E−20	9.2E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	6.1E−15	1.8E−17	1.4E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	2.7E−13	5.9E−18	4.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	8.0E−11	7.3E−08	2.3E−10	1.8E−09	5.4E−09	2.2E−11	1.6E−10	1.1E−10	5.1E−10	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.9E−10	5.5E−08	1.9E−11	1.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.5E−13	1.2E−12	6.7E−13	5.0E−12	1.9E−08	2.0E−08	1.5E−07	8.1E−09	8.1E−09	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.6E−12	8.3E−11	1.3E−10	9.6E−10	6.4E−07	2.4E−06	1.8E−05	4.9E−07	4.9E−07	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.3E−13	1.1E−11	1.7E−11	1.3E−10	8.3E−08	3.3E−07	2.4E−06	6.5E−08	6.5E−08	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.1E−13	3.5E−12	3.2E−11	2.4E−10	1.6E−08	5.8E−07	4.3E−06	3.2E−08	3.2E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.6E−15	8.7E−14	5.0E−14	3.8E−13	1.7E−09	1.8E−09	1.3E−08	7.0E−10	7.0E−10	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.4E−13	2.3E−11	2.0E−10	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	5.0E−13	1.6E−11	7.3E−11	5.4E−10	7.6E−08	1.2E−06	9.0E−06	1.1E−07	1.1E−07	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.0E−10	1.8E−09	1.3E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	2.3E−12	1.1E−10	8.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.7E−14	2.3E−13	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.1E−14	1.4E−14	1.0E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	4.3E−16	1.1E−14	4.7E−15	3.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	9.6E−15	2.7E−13	1.2E−14	8.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.8E−15	1.4E−13	4.8E−11	4.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	2.1E−15	5.2E−14	2.7E−11	2.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.1E−08	1.4E−07	5.9E−09	2.2E−08	2.2E−06	5.7E−06	3.4E−05	8.7E−06	8.7E−06		5.2E−05	2.0E−05	3.4E−06	2.4E−06	0.0E+00	6.3E−07
Sum Chem (BaP for PAHs):	1.1E−08	1.4E−07	6.8E−09	2.9E−08	3.8E−06	2.2E−05	1.6E−04	1.0E−05	1.0E−05		5.2E−05	2.0E−05	3.4E−06	2.4E−06	0.0E+00	6.3E−07
TOTAL ALL (TEF Approach):	4.3E−07	1.5E−07	6.5E−09	4.7E−08	3.3E−06	6.4E−06	6.3E−05	9.3E−06	8.7E−06	1.1E−05	2.9E−04	8.3E−05	5.7E−06	8.5E−05	1.8E−06	6.3E−07
TOTAL ALL (BaP Approach):	4.3E−07	1.5E−07	7.4E−09	5.4E−08	4.9E−06	2.3E−05	1.9E−04	1.1E−05	1.0E−05	1.1E−05	2.9E−04	8.3E−05	5.7E−06	8.5E−05	1.8E−06	6.3E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33f
ILCRs FOR ON–PROPERTY CHILD
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	3.5E−14	1.7E−12	2.7E−12	2.2E−11	4.4E−08	1.7E−07	1.4E−06	1.3E−08	NA	6.9E−06	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.1E−11	4.8E−12	3.9E−14	8.2E−14	1.1E−07	4.4E−09	9.3E−09	1.0E−07	NA	1.4E−06	1.2E−07	3.7E−08	1.7E−10	3.7E−10	NA	NA
Pu_{238}	3.9E−10	5.8E−11	1.9E−15	8.9E−15	1.4E−10	1.0E−12	4.9E−12	2.8E−08	NA	2.6E−11	NA	NA	NA	NA	NA	NA
$Pu_{239/240}$	8.8E−11	1.4E−11	1.2E−15	5.4E−15	1.5E−10	1.1E−12	5.1E−12	2.9E−08	NA	2.5E−11	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	3.7E−09	1.2E−08	6.3E−10	2.6E−08	1.9E−06	5.2E−07	2.2E−05	1.1E−05	NA	6.5E−04	2.0E−05	6.2E−06	1.3E−07	5.6E−06	1.6E−06	NA
Ru_{106}	2.0E−12	1.1E−12	9.9E−14	7.3E−16	2.7E−08	1.4E−08	9.9E−11	1.2E−08	NA	ND	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	2.3E−13	5.6E−12	4.5E−13	5.3E−11	6.4E−07	1.2E−07	1.4E−05	2.3E−08	NA	ND	2.5E−07	1.1E−07	5.3E−09	6.2E−07	NA	NA
Tc_{99}	1.6E−13	7.2E−13	5.1E−13	1.4E−11	1.1E−07	3.8E−07	1.1E−05	6.6E−10	NA	2.2E−12	9.0E−07	2.7E−07	1.2E−07	3.4E−06	NA	NA
Th_{230}	2.0E−08	2.4E−10	2.7E−13	5.2E−12	1.9E−09	9.2E−11	1.8E−09	1.9E−07	NA	6.0E−09	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	4.9E−09	2.0E−10	2.2E−13	4.4E−12	1.7E−09	8.6E−11	1.7E−09	1.8E−07	NA	6.7E−05	NA	NA	NA	NA	NA	NA
U_{234}	2.6E−08	4.2E−10	4.4E−12	3.1E−10	1.0E−07	5.9E−09	4.1E−07	2.2E−07	NA	3.1E−09	2.0E−06	5.2E−07	3.4E−09	2.5E−07	NA	NA
$U_{235/236}$	2.5E−09	4.2E−11	4.3E−13	3.0E−11	4.3E−09	2.5E−10	1.8E−08	9.4E−09	NA	1.0E−06	8.9E−08	2.3E−08	1.6E−10	1.1E−08	NA	NA
U_{238+2d}	6.2E−08	8.8E−10	9.1E−12	6.4E−10	3.8E−07	2.3E−08	1.6E−06	8.4E−07	NA	8.0E−06	3.3E−06	8.8E−07	5.9E−09	4.3E−07	NA	NA
Rn_{222+4d}	5.3E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.7E−07	1.4E−08	6.4E−10	2.8E−08	3.4E−06	1.2E−06	5.0E−05	1.3E−05		7.3E−04	2.6E−05	8.0E−06	2.7E−07	1.0E−05	1.6E−06	
Chemicals																
arsenic	5.8E−09	2.4E−08	8.6E−09	6.0E−09	1.3E−05	1.4E−05	9.8E−06	1.9E−05	2.0E−07	NA	1.6E−05	6.2E−06	1.1E−06	7.9E−07	ND	3.4E−08
beryllium	1.7E−10	2.8E−09	5.9E−10	1.2E−11	5.9E−07	5.1E−07	1.1E−08	3.5E−06	3.5E−06	NA	6.1E−07	2.1E−07	1.6E−08	3.4E−10	ND	1.2E−07
cadmium	7.6E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.6E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	4.5E−10	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
benzene	2.4E−18	1.1E−16	2.0E−20	1.5E−19	2.4E−08	5.0E−12	3.8E−11	9.5E−11	5.3E−13	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.9E−14	2.4E−15	3.1E−14	1.7E−07	3.1E−08	4.1E−07	5.7E−08	2.5E−09	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	4.8E−14	2.4E−16	1.8E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	3.3E−17	8.5E−17	8.4E−21	6.7E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.1E−16	1.3E−14	1.1E−19	1.3E−18	1.5E−07	1.8E−12	2.2E−11	2.3E−10	6.9E−10	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	2.1E−14	6.0E−17	4.9E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	3.9E−13	8.4E−18	6.7E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	5.5E−10	5.0E−07	1.6E−09	1.2E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	3.3E−09	3.6E−07	1.3E−10	9.6E−10	1.3E−08	5.1E−12	3.8E−11	7.2E−11	2.2E−10	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	3.2E−13	1.1E−12	6.2E−13	4.6E−12	3.7E−07	4.0E−07	2.9E−06	1.6E−07	1.6E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	2.5E−12	8.0E−11	1.2E−10	9.3E−10	1.0E−05	3.8E−05	2.9E−04	7.8E−06	7.8E−06	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	3.1E−13	9.8E−12	1.6E−11	1.2E−10	3.0E−06	1.2E−05	8.9E−05	2.4E−06	2.4E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.3E−13	4.0E−12	3.7E−11	2.7E−10	1.2E−08	4.6E−07	3.4E−06	2.5E−08	2.5E−08	NA	NA	NA	NA	NA	NA	NA
chrysene	2.2E−15	7.2E−14	4.2E−14	3.1E−13	2.1E−08	2.2E−08	1.7E−07	8.8E−09	8.8E−09	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	7.0E−13	2.2E−11	1.9E−10	1.4E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	4.4E−13	1.4E−11	6.3E−11	4.7E−10	6.0E−08	9.7E−07	7.2E−06	8.8E−08	8.8E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	3.7E−10	9.6E−10	7.1E−09	1.7E−07	5.2E−07	3.9E−06	1.2E−07	9.5E−08	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.2E−12	1.6E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	3.6E−14	2.2E−13	1.7E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	7.9E−15	5.2E−15	3.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	8.5E−16	2.3E−14	9.3E−15	7.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	7.7E−15	2.2E−13	9.4E−15	7.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	1.8E−14	4.4E−13	1.5E−10	1.3E−09	6.5E−09	9.8E−05	8.2E−04	1.5E−07	8.9E−08	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.1E−15	7.6E−14	3.9E−11	3.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	2.7E−08	8.9E−07	1.3E−08	3.2E−08	2.8E−05	1.6E−04	1.2E−03	3.3E−05	1.4E−05		1.7E−05	6.4E−06	1.1E−06	7.9E−07	0.0E+00	1.6E−07
Sum Chem (BaP for PAHs):	2.7E−08	8.9E−07	1.4E−08	3.9E−08	5.7E−05	2.7E−04	2.0E−03	5.4E−05	3.5E−05		1.7E−05	6.4E−06	1.1E−06	7.9E−07	0.0E+00	1.6E−07
TOTAL ALL (TEF Approach):	2.0E−07	9.0E−07	1.3E−08	6.0E−08	3.1E−05	1.7E−04	1.3E−03	4.6E−05	1.4E−05	7.3E−04	4.3E−05	1.4E−05	1.4E−06	1.1E−05	1.6E−06	1.6E−07
TOTAL ALL (BaP Approach):	2.0E−07	9.0E−07	1.4E−08	6.7E−08	6.0E−05	2.7E−04	2.0E−03	6.7E−05	3.5E−05	7.3E−04	4.3E−05	1.4E−05	1.4E−06	1.1E−05	1.6E−06	1.6E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–33g
ILCRs FOR ON–PROPERTY CHILD
SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's and Radon	Dermal Contact while Bathing
Radionuclides																
Cs_{137+1d}	4.0E−14	2.0E−12	3.1E−12	2.6E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Np_{237+1d}	2.0E−11	4.7E−12	3.7E−14	8.0E−14	NA	NA	NA	NA	NA	NA	2.8E−07	8.9E−08	4.1E−10	8.9E−10	NA	NA
Pu_{238}	1.2E−09	1.8E−10	5.9E−15	2.8E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pu_{239240}	1.5E−10	2.4E−11	2.0E−15	9.3E−15	8.4E−10	6.2E−12	2.9E−11	1.6E−07	NA	1.4E−10	NA	NA	NA	NA	NA	NA
Ra_{226+8d}	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.6E−05	8.3E−06	1.8E−07	7.5E−06	2.1E−06	NA
Ru_{106}	4.9E−13	2.7E−13	2.4E−14	1.7E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	4.0E−13	9.7E−12	7.8E−13	9.2E−11	7.2E−07	1.4E−07	1.6E−05	2.5E−08	NA	ND	1.0E−06	4.6E−07	2.1E−08	2.5E−06	NA	NA
Tc_{99}	6.4E−13	2.9E−12	2.1E−12	5.7E−11	NA	NA	NA	NA	NA	NA	1.9E−05	5.5E−06	2.5E−06	7.0E−05	NA	NA
Th_{230}	7.3E−08	8.6E−10	9.8E−13	1.9E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
U_{234}	9.8E−08	1.6E−09	1.6E−11	1.2E−09	1.1E−08	6.5E−10	4.6E−08	2.4E−08	NA	3.4E−10	1.0E−04	2.8E−05	1.8E−07	1.3E−05	NA	NA
U_{235236}	7.3E−09	1.2E−10	1.3E−12	9.0E−11	2.5E−09	1.5E−10	1.0E−08	5.4E−09	NA	6.1E−07	4.7E−06	1.3E−06	8.3E−09	6.0E−07	NA	NA
U_{238+2d}	2.0E−07	2.8E−09	2.9E−11	2.0E−09	1.4E−08	8.5E−10	6.0E−08	3.2E−08	NA	3.0E−07	1.8E−04	4.7E−05	3.1E−07	2.3E−05	NA	NA
Rn_{222+4d}	3.2E−08	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	4.1E−07	5.6E−09	5.4E−11	3.5E−09	7.5E−07	1.4E−07	1.6E−05	2.5E−07		9.1E−07	3.3E−04	9.0E−05	3.2E−06	1.2E−04	2.1E−06	
Chemicals																
arsenic	2.5E−09	1.0E−08	3.7E−09	2.6E−09	1.7E−05	1.8E−05	1.3E−05	2.6E−05	2.7E−07	NA	5.5E−05	2.1E−05	3.7E−06	2.6E−06	ND	1.1E−07
beryllium	1.5E−10	2.5E−09	5.2E−10	1.1E−11	5.9E−07	5.0E−07	1.1E−08	3.4E−06	3.4E−06	NA	2.8E−06	9.6E−07	7.3E−08	1.6E−09	ND	5.6E−07
cadmium	4.1E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	1.3E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	2.9E−10	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzene	2.7E−18	1.3E−16	2.3E−20	1.7E−19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.6E−14	2.9E−15	3.8E−14	2.8E−09	5.3E−10	6.9E−09	9.5E−10	4.2E−11	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.6E−14	4.7E−16	3.5E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	4.9E−17	1.2E−16	1.2E−20	9.9E−20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.5E−16	1.7E−14	1.4E−19	1.7E−18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodiphenylamine	ND	5.6E−15	1.6E−17	1.3E−16	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	4.1E−13	9.0E−18	7.1E−17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	7.0E−11	6.4E−08	2.1E−10	1.5E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trichloroethene	4.3E−10	4.8E−08	1.7E−11	1.3E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	3.3E−12	1.0E−10	1.6E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	4.1E−13	1.3E−11	2.1E−11	1.6E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	1.5E−13	4.9E−12	4.5E−11	3.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chrysene	2.9E−15	9.6E−14	5.6E−14	4.1E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	1.0E−12	3.3E−11	2.8E−10	2.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	6.0E−13	1.8E−11	8.6E−11	6.4E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	7.4E−10	1.9E−09	1.4E−08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	3.6E−12	1.7E−10	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	4.3E−14	2.7E−13	2.0E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	2.0E−14	1.3E−14	9.5E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.9E−16	1.0E−14	4.3E−15	3.2E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	8.8E−15	2.4E−13	1.1E−14	8.0E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	5.8E−15	1.4E−13	4.8E−11	4.0E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	3.4E−15	8.2E−14	4.3E−11	3.5E−10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	1.7E−08	1.3E−07	7.2E−09	2.5E−08	1.8E−05	1.9E−05	1.3E−05	2.9E−05	3.7E−06		5.7E−05	2.2E−05	3.8E−06	2.6E−06	0.0E+00	6.8E−07
Sum Chem (BaP for PAHs):	1.7E−08	1.3E−07	8.4E−09	3.4E−08	1.8E−05	1.9E−05	1.3E−05	2.9E−05	3.7E−06		5.7E−05	2.2E−05	3.8E−06	2.6E−06	0.0E+00	6.8E−07
TOTAL ALL (TEF Approach):	4.3E−07	1.3E−07	7.3E−09	2.8E−08	1.9E−05	1.9E−05	2.9E−05	2.9E−05	3.7E−06	9.1E−07	3.9E−04	1.1E−04	7.0E−06	1.2E−04	2.1E−06	6.8E−07
TOTAL ALL (BaP Approach):	4.3E−07	1.3E−07	8.4E−09	3.7E−08	1.9E−05	1.9E−05	2.9E−05	2.9E−05	3.7E−06	9.1E−07	3.9E−04	1.1E−04	7.0E−06	1.2E−04	2.1E−06	6.8E−07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34a
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	7.1E−07	2.3E−12	1.7E−11	1.5E+00	5.4E−06	4.0E−05	5.5E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	2.2E−03	7.2E−04	1.7E−03	2.6E+00	1.1E+00	2.7E+00	7.5E−01	5.0E−01	NA	5.9E+00	5.8E+00	9.7E−01	2.3E+00	ND	7.9E−02
arsenic	ND	5.5E−04	2.0E−04	1.4E−04	3.2E−01	3.4E−01	2.4E−01	4.6E−01	4.9E−03	NA	2.1E+00	7.8E−01	1.4E−01	1.0E−01	ND	4.3E−03
barium	5.9E−04	1.1E−04	8.1E−06	4.4E−04	7.2E−02	7.4E−03	4.0E−01	4.3E−02	4.7E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	3.3E−06	7.1E−07	1.5E−08	5.2E−04	4.4E−04	9.3E−06	3.1E−03	3.1E−02	NA	5.5E−07	1.9E−07	1.4E−08	3.0E−10	ND	1.1E−07
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	9.7E−04	1.2E−04	5.2E−03	1.1E+00	1.5E−01	6.4E+00	6.7E−02	1.3E−01	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	9.0E−05	6.8E−05	4.3E−04	3.6E−02	4.9E−02	3.1E−01	7.0E−02	1.6E−02	NA	3.8E−03	2.0E−03	4.7E−04	3.0E−03	ND	3.4E−05
cobalt	1.6E−02	3.9E−06	1.2E−05	2.8E−05	2.0E−03	1.1E−02	2.6E−02	2.5E−03	5.7E−04	NA	NA	NA	NA	NA	NA	NA
copper	ND	1.2E−04	1.2E−04	4.3E−04	4.2E−01	4.4E−01	1.5E+00	1.5E−02	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	5.9E−05	2.3E−05	4.4E−04	3.4E−01	2.0E−01	3.7E+00	5.4E−03	1.1E−02	NA	2.7E+00	1.4E+00	3.2E−01	6.1E+00	ND	1.1E−01
manganese	3.1E−02	3.1E−04	3.2E−05	6.6E−04	3.0E−01	4.0E−02	8.1E−01	5.3E−02	1.8E−01	NA	1.1E+00	1.3E+00	6.7E−02	1.4E+00	ND	7.2E−02
mercury	3.2E−06	4.0E−05	1.4E−03	6.0E−05	6.5E−01	4.7E+01	2.0E+00	2.8E−02	9.5E−02	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	5.7E−05	6.6E−05	3.9E−04	1.3E−01	2.2E−01	1.3E+00	1.9E−02	5.1E−03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	1.3E−04	5.6E−05	2.2E−04	1.1E−01	5.0E−02	1.9E−01	1.6E−02	8.2E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	1.4E−05	1.7E−05	1.1E−04	6.3E−03	8.5E−03	5.3E−02	2.2E−03	2.8E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	1.4E−04	9.9E−05	1.5E−02	1.4E−01	1.1E−01	1.7E+01	1.2E−02	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	6.0E−05	4.6E−04	5.4E−04	3.8E−03	3.4E−01	4.0E−01	8.3E−02	8.3E−03	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	1.2E−02	1.2E−04	8.4E−03	1.8E+00	1.1E−01	7.4E+00	3.9E+00	7.9E+00	NA	5.9E+01	1.5E+01	1.0E−01	7.5E+00	ND	2.3E+00
vanadium	ND	6.4E−05	2.2E−05	4.2E−06	1.7E−02	1.4E−02	2.6E−03	5.0E−02	1.0E−02	NA	NA	NA	NA	NA	NA	NA
zinc	ND	9.6E−04	1.0E−02	2.4E−02	6.1E−01	6.6E+00	1.5E+01	6.0E−03	2.4E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	5.4E−09	4.3E−10	5.7E−09	5.4E−04	1.0E−04	1.3E−03	1.8E−04	8.2E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.1E−10	1.1E−14	8.7E−14	3.6E−03	4.5E−07	3.6E−06	1.2E−05	3.5E−05	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.4E−03	2.6E−07	2.0E−06	5.8E−06	1.9E−05	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	5.2E−03	8.7E−04	6.5E−03	8.7E−04	6.0E−03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E−12	1.7E−09	1.4E−14	1.7E−13	2.5E−03	3.0E−08	3.6E−07	3.8E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	4.0E−03	1.2E−03	8.9E−03	8.9E−04	6.2E−03	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.1E−03	1.6E−05	1.2E−04	1.3E−03	5.4E−06	4.0E−05	2.8E−05	1.3E−04	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	1.5E−08	9.3E−08	6.9E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	2.2E−08	9.5E−10	7.1E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	4.8E−02	2.3E−02	1.4E−02	5.9E−02	1.0E+01	5.7E+01	6.0E+01	5.6E+00	8.9E+00		7.0E+01	2.5E+01	1.6E+00	1.7E+01	0.0E+00	2.6E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34b
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
NORTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.4E–07	4.5E–13	3.3E–12	9.3E–01	3.4E–06	2.5E–05	3.4E–04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	5.4E–04	1.7E–04	4.1E–04	3.5E–01	1.6E–01	3.7E–01	1.0E–01	6.8E–02	NA	3.5E–02	3.4E–02	5.7E–03	1.3E–02	ND	4.6E–04
arsenic	ND	1.4E–04	5.2E–05	3.6E–05	NA	NA	NA	NA	NA	NA	2.9E–01	1.1E–01	2.0E–02	1.4E–02	ND	6.1E–04
barium	9.4E–05	1.7E–05	1.3E–06	7.1E–05	3.1E–02	3.2E–03	1.8E–01	1.8E–02	2.0E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	8.3E–07	1.8E–07	3.7E–09	7.0E–04	5.9E–04	1.3E–05	4.1E–03	4.1E–02	NA	5.0E–18	1.7E–18	1.3E–19	2.8E–21	ND	1.0E–18
boron	NA	NA	NA	NA	4.6E–01	4.7E–02	2.1E+00	2.0E–03	4.1E–03	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.5E–04	4.4E–05	1.9E–03	3.7E–01	4.9E–02	2.1E+00	2.2E–02	4.3E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.2E–05	1.7E–05	1.1E–04	1.9E–02	2.5E–02	1.6E–01	3.6E–02	8.1E–03	NA	7.5E–05	3.9E–05	9.2E–06	6.0E–05	ND	6.7E–07
cobalt	4.7E–03	1.1E–06	3.5E–06	8.2E–06	2.0E–03	1.1E–02	2.6E–02	2.6E–03	5.7E–04	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.6E–05	2.5E–05	9.0E–05	1.6E–01	1.7E–01	5.9E–01	5.7E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.0E–05	7.7E–06	1.4E–04	1.4E+00	8.5E–01	1.6E+01	2.3E–02	4.6E–02	NA	1.3E+00	7.0E–01	1.6E–01	3.0E+00	ND	5.4E–02
manganese	8.1E–03	8.1E–05	8.4E–06	1.7E–04	4.9E–01	6.5E–02	1.3E+00	8.7E–02	2.9E–01	NA	1.9E–01	2.3E–01	1.2E–02	2.5E–01	ND	1.3E–02
mercury	2.5E–07	3.1E–06	1.1E–04	4.7E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.4E–05	1.7E–05	9.8E–05	2.0E–01	3.4E–01	2.0E+00	3.0E–02	7.9E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.8E–05	1.6E–05	6.4E–05	7.4E–02	3.3E–02	1.3E–01	1.1E–02	5.4E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.7E–06	3.3E–06	2.1E–05	5.6E–03	7.5E–03	4.7E–02	2.0E–03	2.5E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	4.0E–05	2.7E–05	4.3E–03	1.1E–01	8.9E–02	1.4E+01	1.0E–02	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.2E–05	1.7E–04	2.0E–04	5.6E–03	5.0E–01	5.8E–01	1.2E–01	1.2E–02	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	7.9E–04	8.1E–06	5.7E–04	2.9E–02	1.7E–03	1.2E–01	6.3E–02	1.3E–01	NA	1.4E–01	3.6E–02	2.4E–04	1.7E–02	ND	5.4E–03
vanadium	ND	1.7E–05	5.9E–06	1.1E–06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	6.1E–04	6.6E–03	1.5E–02	3.0E–01	3.2E+00	7.5E+00	2.9E–03	1.2E–03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	1.3E–09	1.0E–10	1.4E–09	1.1E–03	2.1E–04	2.7E–03	3.8E–04	1.7E–05	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E–11	2.4E–15	1.9E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.1E–04	5.1E–05	3.8E–04	5.1E–05	3.6E–04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	3.1E–13	1.1E–10	9.1E–16	1.1E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.5E–04	7.5E–05	5.6E–04	5.5E–05	3.9E–04	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	2.5E–02	7.9E–05	5.9E–04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	2.8E–09	1.8E–08	1.3E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	1.8E–09	8.0E–11	6.0E–10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.3E–02	2.7E–02	7.3E–03	2.4E–02	5.0E+00	5.5E+00	4.7E+01	5.4E–01	6.5E–01		2.0E+00	1.1E+00	2.0E–01	3.3E+00	0.0E+00	7.3E–02

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34c
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
NORTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.1E–07	1.3E–12	9.7E–12	9.5E–01	3.4E–06	2.5E–05	3.4E–04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	7.7E–04	2.5E–04	5.9E–04	5.6E–01	2.5E–01	5.8E–01	1.6E–01	1.1E–01	NA	6.5E+00	6.4E+00	1.1E+00	2.5E+00	ND	8.6E–02
arsenic	ND	2.7E–04	9.8E–05	6.9E–05	NA	NA	NA	NA	NA	NA	9.9E–01	3.8E–01	6.8E–02	4.8E–02	ND	2.1E–03
barium	2.2E–04	4.1E–05	3.1E–06	1.7E–04	4.2E–02	4.3E–03	2.3E–01	2.5E–02	2.7E–03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.9E–06	3.9E–07	8.3E–09	4.2E–04	3.6E–04	7.6E–06	2.5E–03	2.5E–02	NA	2.0E–11	7.0E–12	5.4E–13	1.1E–14	ND	4.1E–12
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	5.8E–04	7.3E–05	3.1E–03	5.2E–01	6.8E–02	2.9E+00	3.0E–02	6.1E–02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	4.7E–05	3.5E–05	2.3E–04	2.0E–02	2.8E–02	1.8E–01	4.0E–02	8.9E–03	NA	1.6E–03	8.5E–04	2.0E–04	1.3E–03	ND	1.5E–05
cobalt	8.2E–03	2.0E–06	6.2E–06	1.4E–05	2.4E–03	1.3E–02	3.1E–02	3.1E–03	6.8E–04	NA	NA	NA	NA	NA	NA	NA
copper	ND	8.0E–05	8.0E–05	2.8E–04	2.0E–01	2.1E–01	7.3E–01	6.9E–03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.7E–05	1.4E–05	2.7E–04	4.1E+00	2.4E+00	4.5E+01	6.6E–02	1.3E–01	NA	1.7E+00	8.7E–01	2.0E–01	3.8E+00	ND	6.7E–02
manganese	1.7E–02	1.7E–04	1.8E–05	3.6E–04	9.5E–01	1.3E–01	2.6E+00	1.7E–01	5.6E–01	NA	3.7E–01	4.4E–01	2.3E–02	4.7E–01	ND	2.5E–02
mercury	1.1E–06	1.3E–05	4.7E–04	2.0E–05	1.2E–01	8.4E+00	3.6E–01	5.1E–03	1.7E–02	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	3.1E–05	3.5E–05	2.1E–04	2.0E–01	3.3E–01	1.9E+00	2.9E–02	7.6E–03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	6.9E–05	3.0E–05	1.2E–04	8.9E–02	4.0E–02	1.6E–01	1.3E–02	6.5E–04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	4.4E–06	5.4E–06	3.4E–05	3.9E–03	5.2E–03	3.2E–02	1.4E–03	1.7E–04	NA	NA	NA	NA	NA	NA	NA
silver	ND	6.3E–05	4.3E–05	6.7E–03	3.8E–02	3.0E–02	4.7E+00	3.3E–03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	3.6E–05	2.8E–04	3.3E–04	5.9E–03	5.3E–01	6.2E–01	1.3E–01	1.3E–02	NA	NA	NA	NA	NA	NA	NA
uranium–total	ND	3.2E–03	3.3E–05	2.3E–03	4.6E–01	2.7E–02	1.9E+00	1.0E+00	2.0E+00	NA	3.1E+01	8.2E+00	5.5E–02	4.0E+00	ND	1.2E+00
vanadium	ND	3.2E–05	1.1E–05	2.1E–06	1.9E–02	1.6E–02	3.0E–03	5.7E–02	1.1E–02	NA	NA	NA	NA	NA	NA	NA
zinc	ND	9.2E–04	9.8E–03	2.3E–02	1.3E+00	1.4E+01	3.3E+01	1.3E–02	5.2E–03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	5.2E–09	4.2E–10	5.5E–09	1.8E–04	3.4E–05	4.5E–04	6.1E–05	2.7E–06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.1E–10	1.1E–14	9.1E–14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2–dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	9.5E–04	1.6E–04	1.2E–03	1.6E–04	1.1E–03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.0E–12	2.0E–09	1.8E–14	2.1E–13	4.6E–03	5.5E–08	6.6E–07	6.9E–06	2.1E–05	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.5E–03	4.6E–04	3.4E–03	3.4E–04	2.4E–03	NA	NA	NA	NA	NA	NA	NA
2–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4–nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	5.6E–03	1.8E–05	1.3E–04	1.1E–03	4.3E–06	3.2E–05	2.3E–05	1.0E–04	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1–trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4–ddt	ND	1.1E–08	6.9E–08	5.1E–07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di–n–octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	4.4E–09	1.9E–10	1.4E–09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.5E–02	1.2E–02	1.1E–02	3.8E–02	9.6E+00	2.7E+01	9.5E+01	1.8E+00	3.0E+00		4.1E+01	1.6E+01	1.4E+00	1.1E+01	0.0E+00	1.4E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34d
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
SOUTHEAST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.4E−07	7.6E−13	5.7E−12	1.0E+00	3.8E−06	2.8E−05	3.8E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	4.2E−04	1.4E−04	3.2E−04	1.2E+00	5.2E−01	1.2E+00	3.4E−01	2.3E−01	NA	4.7E−01	4.6E−01	7.6E−02	1.8E−01	ND	6.2E−03
arsenic	ND	1.5E−04	5.4E−05	3.8E−05	NA	NA	NA	NA	NA	NA	1.2E+00	4.6E−01	8.3E−02	5.9E−02	ND	2.6E−03
barium	1.3E−04	2.4E−05	1.8E−06	9.8E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.0E−06	2.1E−07	4.5E−09	6.1E−04	5.2E−04	1.1E−05	3.6E−03	3.6E−02	NA	1.5E−03	5.2E−04	4.0E−05	8.5E−07	ND	3.0E−04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.4E−04	3.1E−05	1.3E−03	6.1E−01	8.0E−02	3.4E+00	3.6E−02	7.2E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.3E−05	1.7E−05	1.1E−04	1.7E−02	2.4E−02	1.5E−01	3.4E−02	7.6E−03	NA	1.4E−01	7.1E−02	1.7E−02	1.1E−01	ND	1.2E−03
cobalt	4.3E−03	1.0E−06	3.2E−06	7.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	3.9E−05	3.9E−05	1.4E−04	1.3E−01	1.4E−01	4.9E−01	4.7E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.9E−05	7.3E−06	1.4E−04	1.5E+00	8.5E−01	1.6E+01	2.3E−02	4.7E−02	NA	8.9E+00	4.7E+00	1.1E+00	2.0E+01	ND	3.6E−01
manganese	8.9E−03	9.0E−05	9.3E−06	1.9E−04	NA	NA	NA	NA	NA	NA	6.2E−01	7.2E−01	3.8E−02	7.8E−01	ND	4.1E−02
mercury	6.0E−07	7.3E−06	2.6E−04	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.4E−05	1.6E−05	9.2E−05	1.4E−01	2.4E−01	1.4E+00	2.1E−02	5.5E−03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.3E−05	1.4E−05	5.5E−05	6.5E−02	2.9E−02	1.1E−01	9.6E−03	4.8E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	2.7E−06	3.3E−06	2.1E−05	5.8E−03	7.8E−03	4.9E−02	2.0E−03	2.6E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.3E−05	2.3E−05	3.6E−03	2.5E−01	2.0E−01	3.1E+01	2.2E−02	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.4E−05	1.1E−04	1.2E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	2.9E−03	3.0E−05	2.1E−03	2.7E−02	1.6E−03	1.1E−01	6.0E−02	1.2E−01	NA	1.9E+02	5.1E+01	3.4E−01	2.5E+01	ND	7.7E+00
vanadium	ND	1.7E−05	6.0E−06	1.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.3E−04	2.5E−03	5.8E−03	2.7E−01	2.9E+00	6.8E+00	2.7E−03	1.1E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.4E−09	1.1E−10	1.4E−09	9.6E−05	1.8E−05	2.4E−04	3.3E−05	1.4E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.0E−11	2.0E−15	1.6E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E−13	3.3E−10	2.8E−15	3.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	1.1E−04	3.4E−05	2.5E−04	2.5E−05	1.8E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.3E−03	4.3E−06	3.2E−05	1.8E−04	7.3E−07	5.5E−06	3.8E−06	1.7E−05	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.7E−09	1.7E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.6E−09	1.6E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.3E−02	5.6E−03	3.2E−03	1.4E−02	5.2E+00	5.0E+00	6.1E+01	5.6E−01	5.1E−01		2.0E+02	5.7E+01	1.6E+00	4.6E+01	0.0E+00	8.1E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34e
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
SOUTHWEST AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	1.8E−07	5.6E−13	4.2E−12	7.8E−01	2.8E−06	2.1E−05	2.8E−04	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	5.0E−04	1.6E−04	3.8E−04	NA	NA	NA	NA	NA	NA	1.9E+00	1.9E+00	3.2E−01	7.5E−01	ND	2.6E−02
arsenic	ND	1.7E−04	6.3E−05	4.4E−05	NA	NA	NA	NA	NA	NA	1.1E+00	4.2E−01	7.5E−02	5.3E−02	ND	2.3E−03
barium	1.4E−04	2.6E−05	1.9E−06	1.0E−04	3.1E−02	3.2E−03	1.7E−01	1.8E−02	2.0E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.0E−06	2.1E−07	4.5E−09	7.4E−04	6.3E−04	1.3E−05	4.3E−03	4.3E−02	NA	1.4E−03	4.9E−04	3.7E−05	8.0E−07	ND	2.9E−04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	2.4E−04	3.1E−05	1.3E−03	2.8E−01	3.7E−02	1.6E+00	1.7E−02	3.3E−02	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	2.1E−05	1.6E−05	1.0E−04	NA	NA	NA	NA	NA	NA	1.1E−01	5.5E−02	1.3E−02	8.4E−02	ND	9.5E−04
cobalt	4.3E−03	1.0E−06	3.2E−06	7.5E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	2.7E−05	2.7E−05	9.5E−05	1.3E−01	1.4E−01	4.9E−01	4.7E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	1.6E−05	6.2E−06	1.2E−04	NA	NA	NA	NA	NA	NA	5.7E+00	3.0E+00	6.7E−01	1.3E+01	ND	2.3E−01
manganese	9.4E−03	9.5E−05	9.8E−06	2.0E−04	6.4E−01	8.5E−02	1.8E+00	1.1E−01	3.8E−01	NA	5.4E−01	6.3E−01	3.3E−02	6.8E−01	ND	3.6E−02
mercury	6.6E−07	8.0E−06	2.9E−04	1.2E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.3E−05	1.5E−05	8.6E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nickel	ND	3.3E−05	1.4E−05	5.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.3E−06	4.0E−06	2.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	3.3E−05	2.3E−05	3.6E−03	1.4E−02	1.1E−02	1.7E+00	1.2E−03	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	1.4E−05	1.1E−04	1.3E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	3.3E−03	3.4E−05	2.4E−03	1.8E−01	1.1E−02	7.7E−01	4.1E−01	8.1E−01	NA	1.3E+02	3.5E+01	2.3E−01	1.7E+01	ND	5.4E+00
vanadium	ND	1.6E−05	5.7E−06	1.1E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	2.2E−04	2.4E−03	5.5E−03	3.7E−01	4.0E+00	9.3E+00	3.6E−03	1.5E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	2.2E−09	1.8E−10	2.3E−09	1.3E−03	2.5E−04	3.3E−03	4.5E−04	2.0E−05	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.4E−11	1.4E−15	1.1E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	3.7E−04	6.1E−05	4.6E−04	6.1E−05	4.2E−04	NA	NA	NA	NA	NA	NA	NA
methylene chloride	6.8E−13	2.3E−10	2.0E−15	2.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	2.8E−04	8.6E−05	6.4E−04	6.4E−05	4.5E−04	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.6E−03	5.3E−06	3.9E−05	1.2E−04	4.9E−07	3.7E−06	2.6E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.6E−09	1.6E−08	1.2E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.9E−09	1.7E−10	1.3E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.4E−02	6.3E−03	3.2E−03	1.4E−02	2.4E+00	4.3E+00	1.6E+01	5.7E−01	1.3E+00		1.4E+02	4.1E+01	1.3E+00	3.1E+01	0.0E+00	5.6E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34f
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD
WASTE PIT AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	2.2E−07	7.0E−13	5.2E−12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	1.5E−03	4.8E−04	1.1E−03	3.3E+00	1.5E+00	3.4E+00	9.7E−01	6.4E−01	NA	7.4E+00	7.3E+00	1.2E+00	2.9E+00	ND	9.9E−02
arsenic	ND	5.3E−04	1.9E−04	1.3E−04	2.9E−01	3.1E−01	2.2E−01	4.3E−01	4.5E−03	NA	3.6E−01	1.4E−01	2.5E−02	1.8E−02	ND	7.6E−04
barium	1.8E−04	3.3E−05	2.5E−06	1.4E−04	2.2E−02	2.2E−03	1.2E−01	1.3E−02	1.4E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.5E−06	3.2E−07	6.7E−09	3.2E−04	2.7E−04	5.8E−06	1.9E−03	1.9E−02	NA	3.3E−04	1.1E−04	8.6E−06	1.8E−07	ND	6.6E−05
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	7.0E−04	8.8E−05	3.7E−03	1.3E+00	1.7E−01	7.1E+00	7.4E−02	1.5E−01	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	4.2E−05	3.2E−05	2.0E−04	2.0E−02	2.7E−02	1.8E−01	3.9E−02	8.8E−03	NA	1.6E−02	8.1E−03	1.9E−03	1.2E−02	ND	1.4E−04
cobalt	8.5E−03	2.1E−06	6.4E−06	1.5E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	4.5E−05	4.5E−05	1.6E−04	1.8E−01	1.9E−01	6.8E−01	6.5E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	2.7E−05	1.1E−05	2.0E−04	NA	NA	NA	NA	NA	NA	1.1E+00	5.7E−01	1.3E−01	2.5E+00	ND	4.4E−02
manganese	2.0E−02	2.0E−04	2.1E−05	4.3E−04	NA	NA	NA	NA	NA	NA	4.5E−01	5.3E−01	2.8E−02	5.7E−01	ND	3.0E−02
mercury	5.3E−07	6.5E−06	2.3E−04	9.8E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	1.9E−05	2.2E−05	1.3E−04	9.0E−02	1.5E−01	8.8E−01	1.3E−02	3.5E−03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	7.4E−05	3.2E−05	1.2E−04	9.7E−02	4.4E−02	1.7E−01	1.4E−02	7.2E−04	NA	NA	NA	NA	NA	NA	NA
selenium	ND	5.0E−06	6.1E−06	3.8E−05	6.1E−03	8.2E−03	5.1E−02	2.1E−03	2.7E−04	NA	NA	NA	NA	NA	NA	NA
silver	ND	8.1E−05	5.6E−05	8.8E−03	1.3E−01	1.0E−01	1.6E+01	1.2E−02	ND	NA	NA	NA	NA	NA	NA	NA
thallium	ND	4.1E−05	3.1E−04	3.7E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	9.5E−04	9.9E−06	6.9E−04	1.6E−01	9.2E−03	6.5E−01	3.4E−01	6.9E−01	NA	3.6E+00	9.6E−01	6.4E−03	4.6E−01	ND	1.4E−01
vanadium	ND	3.2E−05	1.1E−05	2.1E−06	1.5E−02	1.2E−02	2.3E−03	4.4E−02	8.9E−03	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.6E−04	3.8E−03	8.9E−03	3.5E−01	3.7E+00	8.7E+00	3.4E−03	1.4E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.2E−09	9.9E−11	1.3E−09	7.0E−03	1.3E−03	1.7E−02	2.4E−03	1.1E−04	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	1.6E−11	1.6E−15	1.3E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	4.8E−03	8.0E−04	6.0E−03	8.0E−04	5.6E−03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	9.7E−13	3.3E−10	2.8E−15	3.4E−14	3.9E−03	4.7E−08	5.6E−07	5.9E−06	1.8E−05	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	5.1E−03	1.6E−03	1.2E−02	1.2E−03	8.0E−03	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	ND	1.1E−02	3.6E−05	2.7E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.5E−09	1.5E−08	1.1E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.1E−09	1.4E−10	1.0E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	2.9E−02	1.6E−02	5.4E−03	2.5E−02	5.9E+00	6.2E+00	3.8E+01	2.0E+00	1.5E+00		1.3E+01	9.5E+00	1.4E+00	6.4E+00	0.0E+00	3.2E−01

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–34g
HAZARD QUOTIENTS FOR ON–PROPERTY CHILD SHOOTING RANGE, FUTURE LAND USE

Transfer Media:	Air				Soil						Groundwater					
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Inhalation of VOC's	Dermal Contact while Bathing
cyanide	ND	4.2E−07	1.3E−12	1.0E−11	3.5E+00	1.3E−05	9.4E−05	1.3E−03	ND	NA	NA	NA	NA	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
antimony	ND	6.2E−04	2.0E−04	4.7E−04	4.5E−01	2.0E−01	4.7E−01	1.3E−01	8.7E−02	NA	4.7E−01	4.6E−01	7.6E−02	1.8E−01	ND	6.2E−03
arsenic	ND	2.3E−04	8.2E−05	5.7E−05	3.9E−01	4.1E−01	2.9E−01	5.7E−01	6.0E−03	NA	1.2E+00	4.6E−01	8.3E−02	5.9E−02	ND	2.6E−03
barium	1.7E−04	3.2E−05	2.4E−06	1.3E−04	2.8E−02	2.8E−03	1.5E−01	1.6E−02	1.8E−03	NA	NA	NA	NA	NA	NA	NA
beryllium	ND	1.3E−06	2.8E−07	6.0E−09	3.2E−04	2.7E−04	5.7E−06	1.9E−03	1.9E−02	NA	1.5E−03	5.2E−04	4.0E−05	8.5E−07	ND	3.0E−04
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cadmium	ND	3.8E−04	4.8E−05	2.0E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chromium vi	ND	3.4E−05	2.6E−05	1.6E−04	5.6E−02	7.6E−02	4.9E−01	1.1E−01	2.4E−02	NA	1.4E−01	7.1E−02	1.7E−02	1.1E−01	ND	1.2E−03
cobalt	6.2E−03	1.5E−06	4.6E−06	1.1E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
copper	ND	7.4E−05	7.4E−05	2.6E−04	1.8E−01	1.9E−01	6.6E−01	6.3E−03	ND	NA	NA	NA	NA	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
magnesium	ND	3.0E−05	1.2E−05	2.2E−04	NA	NA	NA	NA	NA	NA	8.9E+00	4.7E+00	1.1E+00	2.0E+01	ND	3.6E−01
manganese	1.3E−02	1.3E−04	1.4E−05	2.8E−04	4.8E−01	6.4E−02	1.3E+00	8.5E−02	2.8E−01	NA	6.2E−01	7.2E−01	3.8E−02	7.8E−01	ND	4.1E−02
mercury	8.2E−07	1.0E−05	3.6E−04	1.5E−05	6.1E+00	4.4E+02	1.9E+01	2.7E−01	8.9E−01	NA	NA	NA	NA	NA	NA	NA
molybdenum	ND	2.3E−05	2.6E−05	1.5E−04	1.5E−01	2.5E−01	1.4E+00	2.2E−02	5.7E−03	NA	NA	NA	NA	NA	NA	NA
nickel	ND	4.7E−05	2.0E−05	7.9E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
selenium	ND	3.2E−06	3.9E−06	2.4E−05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
silver	ND	5.3E−05	3.6E−05	5.7E−03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
thallium	ND	2.1E−05	1.6E−04	1.9E−04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
uranium−total	ND	2.9E−03	3.0E−05	2.1E−03	3.7E−02	2.2E−03	1.5E−01	8.1E−02	1.6E−01	NA	1.9E+02	5.1E+01	3.4E−01	2.5E+01	ND	7.7E+00
vanadium	ND	2.6E−05	8.9E−06	1.7E−06	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
zinc	ND	3.4E−04	3.6E−03	8.4E−03	3.8E−01	4.1E+00	9.6E+00	3.7E−03	1.5E−03	NA	NA	NA	NA	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	1.5E−09	1.2E−10	1.6E−09	1.2E−04	2.2E−05	2.9E−04	4.0E−05	1.8E−06	NA	NA	NA	NA	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloroform	ND	2.4E−11	2.4E−15	1.9E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2−dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2−chloroisopropyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
methylene chloride	1.3E−12	4.3E−10	3.7E−15	4.4E−14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4−nitroanaline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,1−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	2.9E−09	1.8E−08	1.3E−07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
di−n−octylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	3.6E−09	1.6E−10	1.2E−09	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL:	1.9E−02	4.9E−03	4.7E−03	2.0E−02	1.2E+01	4.5E+02	3.3E+01	1.3E+00	1.5E+00		2.0E+02	5.7E+01	1.6E+00	4.6E+01	0.0E+00	8.1E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII–35a
ILCRs FOR RME ON–PROPERTY FARMER
USE OF PERCHED GROUNDWATER IN PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Perched Groundwater			Great Miami Aquifer Groundwater		
Exposure Pathways: / Contaminants of Concern	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Inhalation of VOC's and Radon	Dermal Contact while Bathing	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products
Radionuclides																
Cs_{137+1d}	1.1E−11	1.3E−10	4.6E−10	6.5E−10	4.8E−07	4.2E−06	5.8E−06	1.1E−07	NA	7.5E−05	NA	NA	NA	NA	NA	NA
Np_{237+1d}	7.5E−09	4.2E−10	7.6E−12	2.8E−12	5.2E−07	4.5E−08	1.6E−08	3.6E−07	NA	6.5E−06	2.1E−05	NA	NA	1.1E−07	1.2E−09	4.4E−10
Pu_{238}	2.9E−07	1.0E−08	7.6E−13	6.1E−13	2.5E−08	4.1E−10	3.3E−10	3.8E−06	NA	4.6E−09	9.8E−06	NA	NA	NA	NA	NA
$Pu_{239/240}$	3.9E−08	1.5E−09	2.8E−13	2.2E−13	7.1E−09	1.2E−10	9.5E−11	1.1E−06	NA	1.2E−09	5.7E−06	NA	NA	NA	NA	NA
Ra_{226+8d}	1.0E−06	8.6E−07	9.7E−08	7.0E−07	1.8E−06	1.1E−06	7.9E−06	8.4E−06	NA	6.1E−04	8.1E−05	2.8E−07	NA	2.3E−05	1.1E−06	7.8E−06
Ru_{106}	2.6E−10	3.5E−11	7.0E−12	8.7E−15	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sr_{90+1d}	8.0E−11	4.7E−10	8.4E−11	1.7E−09	8.9E−06	3.8E−06	7.7E−05	2.5E−07	NA	ND	6.1E−06	NA	NA	1.5E−07	1.6E−08	3.2E−07
Tc_{99}	5.7E−11	6.3E−11	1.0E−10	4.7E−10	6.7E−06	5.2E−05	2.4E−04	3.1E−08	NA	1.3E−10	1.2E−04	NA	NA	3.6E−05	3.6E−05	1.7E−04
Th_{230}	9.4E−06	2.7E−08	6.9E−11	2.3E−10	4.5E−08	4.9E−09	1.6E−08	3.6E−06	NA	1.4E−07	9.6E−07	NA	NA	NA	NA	NA
$Th_{232+10d}$	2.7E−06	2.7E−08	6.8E−11	2.3E−10	2.5E−07	2.7E−08	9.1E−08	2.0E−05	NA	9.5E−03	2.4E−05	ND	NA	NA	NA	NA
U_{234}	2.2E−05	8.5E−08	2.0E−09	2.4E−08	1.8E−05	2.4E−06	2.8E−05	3.1E−05	NA	5.4E−07	7.9E−03	NA	NA	1.1E−04	1.7E−06	2.1E−05
$U_{235/236}$	1.7E−06	7.0E−09	1.6E−10	2.0E−09	1.5E−06	2.0E−07	2.4E−06	2.6E−06	NA	3.6E−04	4.1E−04	NA	NA	5.1E−06	7.6E−08	9.4E−07
U_{238+2d}	4.7E−05	1.6E−07	3.8E−09	4.6E−08	4.0E−05	5.3E−06	6.4E−05	6.9E−05	NA	8.3E−04	1.7E−02	NA	NA	1.9E−04	2.9E−06	3.5E−05
Rn_{222+4d}	1.8E−05	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Radionuclides	1.0E−04	1.2E−06	1.0E−07	7.7E−07	7.8E−05	6.9E−05	4.3E−04	1.4E−04		1.1E−02	2.5E−02	2.8E−07		3.7E−04	4.2E−05	2.4E−04
Chemicals																
arsenic	7.0E−08	7.1E−08	5.7E−08	6.9E−09	4.1E−05	9.8E−05	1.2E−05	4.7E−05	1.6E−06	NA	6.7E−04	ND	2.0E−06	1.0E−04	4.1E−05	4.9E−06
beryllium	4.4E−09	1.8E−08	8.4E−09	3.0E−11	2.8E−06	5.3E−06	1.9E−08	1.3E−05	1.3E−05	NA	1.0E−03	ND	2.9E−04	9.9E−10	1.7E−10	6.2E−13
cadmium	1.2E−08	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	NA	NA
chromium vi	4.1E−07	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND
nickel	9.4E−09	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	NA	NA
benzene	1.4E−16	1.6E−15	6.2E−19	8.0E−19	6.2E−08	2.9E−11	3.7E−11	1.9E−10	3.3E−12	NA	1.1E−05	4.2E−05	2.1E−06	NA	NA	NA
bis(2−ethylhexyl)phthalate	ND	3.7E−13	6.7E−14	1.5E−13	3.7E−08	1.6E−08	3.5E−08	9.9E−09	1.4E−09	NA	2.3E−06	ND	6.1E−06	NA	NA	NA
bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.2E−07	4.0E−07	1.7E−08	NA	NA	NA
bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
carbazole	ND	9.3E−13	1.0E−14	1.3E−14	3.9E−07	4.7E−09	5.9E−09	7.4E−09	7.9E−08	NA	NA	NA	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.5E−05	1.1E−04	2.3E−05	NA	NA	NA
chloroform	2.7E−15	1.7E−15	3.7E−19	5.0E−19	5.4E−08	1.5E−11	2.1E−11	1.4E−10	1.3E−09	NA	7.9E−06	3.9E−04	7.6E−07	NA	NA	NA
1,1−dichloroethene	NA	NA	NA	NA	1.9E−06	7.8E−10	1.1E−09	6.1E−09	6.5E−08	NA	3.0E−04	3.3E−04	5.0E−05	NA	NA	NA
1,2−dichloroethane	NA	NA	NA	NA	4.4E−09	1.9E−12	2.4E−12	1.3E−11	1.4E−10	NA	1.8E−04	6.7E−04	9.9E−06	NA	NA	NA
methylene chloride	6.9E−15	1.9E−13	3.7E−18	7.4E−18	2.8E−07	7.7E−12	1.6E−11	3.3E−10	3.2E−09	NA	2.5E−06	2.0E−06	9.5E−08	NA	NA	NA
n−nitrosodiphenylamine	ND	1.7E−13	1.1E−15	1.6E−15	2.6E−07	2.3E−09	3.3E−09	5.1E−09	5.4E−08	NA	NA	NA	NA	NA	NA	NA
n−nitrosodipropylamine	ND	5.4E−12	2.6E−16	3.6E−16	NA	NA	NA	NA	NA	NA	3.8E−04	ND	1.6E−05	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.1E−04	ND	6.1E−03	NA	NA	NA
tetrachloroethene	2.9E−09	6.5E−07	4.7E−09	6.0E−09	1.7E−07	1.6E−09	2.0E−09	2.8E−09	4.0E−08	NA	1.0E−05	1.4E−06	8.0E−06	NA	NA	NA
1,1,2−trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6E−06	5.9E−06	1.7E−07	NA	NA	NA
trichloroethene	1.7E−08	4.7E−07	3.8E−10	4.8E−10	1.3E−07	1.2E−10	1.5E−10	5.7E−10	5.6E−09	NA	5.1E−05	1.0E−04	9.9E−06	NA	NA	NA
vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.2E−04	2.5E−04	2.5E−05	NA	NA	NA
benzo(a)anthracene	2.4E−11	2.0E−11	2.6E−11	3.3E−11	1.1E−06	2.7E−06	3.4E−06	3.7E−07	3.7E−07	NA	NA	NA	NA	NA	NA	NA
benzo(a)pyrene	1.8E−10	1.4E−09	5.0E−09	6.4E−09	3.4E−05	2.9E−04	3.7E−04	2.1E−05	2.1E−05	NA	NA	NA	NA	NA	NA	NA
benzo(b)fluoranthene	2.4E−11	1.8E−10	6.7E−10	8.5E−10	4.4E−06	3.9E−05	5.0E−05	2.7E−06	2.7E−06	NA	NA	NA	NA	NA	NA	NA
benzo(k)fluoranthene	8.1E−12	6.3E−11	1.3E−09	1.6E−09	5.7E−07	4.7E−05	5.9E−05	9.1E−07	9.1E−07	NA	NA	NA	NA	NA	NA	NA
chrysene	1.7E−13	1.4E−12	1.8E−12	2.3E−12	6.9E−08	1.7E−07	2.1E−07	2.3E−08	2.3E−08	NA	NA	NA	NA	NA	NA	NA
dibenzo(a,h)anthracene	5.5E−11	4.2E−10	8.2E−09	1.0E−08	4.0E−06	3.3E−04	4.2E−04	6.4E−06	6.4E−06	NA	NA	NA	NA	NA	NA	NA
indeno(1,2,3−cd)pyrene	3.4E−11	2.6E−10	2.7E−09	3.4E−09	4.1E−06	1.5E−04	1.9E−04	4.6E−06	4.6E−06	NA	NA	NA	NA	NA	NA	NA
aroclor−1254	ND	1.0E−08	6.1E−08	7.7E−08	7.9E−05	5.5E−04	6.9E−04	4.3E−05	1.1E−04	NA	NA	NA	NA	NA	NA	NA
aroclor−1260	ND	4.4E−11	4.9E−09	6.2E−09	4.3E−06	9.7E−04	1.2E−03	1.0E−05	2.6E−05	NA	NA	NA	NA	NA	NA	NA
4,4−ddt	ND	6.3E−13	8.8E−12	1.1E−11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4−dde	ND	3.0E−13	4.4E−13	5.6E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
chlordane	3.9E−14	2.5E−13	2.3E−13	2.9E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	6.3E−13	4.3E−12	4.2E−13	5.4E−13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzo−p−dioxin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA	4.7E−09	1.4E−05	2.0E−05	3.4E−08	6.5E−08	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzo−p−dioxin	6.4E−13	3.8E−12	2.9E−09	4.2E−09	6.6E−10	2.2E−05	3.1E−05	1.2E−08	2.2E−08	NA	NA	NA	NA	NA	NA	NA
octachlorodibenzofuran	1.8E−13	1.1E−12	1.2E−09	1.8E−09	6.1E−10	3.9E−05	5.6E−05	1.4E−08	2.6E−08	NA	NA	NA	NA	NA	NA	NA
Sum Chem (TEF for PAHs):	5.3E−07	1.2E−06	1.6E−07	1.2E−07	1.8E−04	2.6E−03	3.1E−03	1.5E−04	1.9E−04		3.4E−03	1.9E−03	6.6E−03	1.0E−04	4.1E−05	4.9E−06
Sum Chem (BaP for PAHs):	5.3E−07	1.2E−06	1.9E−07	1.7E−07	2.5E−04	4.1E−03	5.1E−03	2.0E−04	2.4E−04		3.4E−03	1.9E−03	6.6E−03	1.0E−04	4.1E−05	4.9E−06
TOTAL ALL (TEF Approach):	1.0E−04	2.4E−06	2.6E−07	9.0E−07	2.6E−04	2.6E−03	3.6E−03	2.9E−04	1.9E−04	1.1E−02	2.9E−02	1.9E−03	6.6E−03	4.7E−04	8.3E−05	2.4E−04
TOTAL ALL (BaP Approach):	1.0E−04	2.4E−06	3.0E−07	9.4E−07	3.3E−04	4.2E−03	5.5E−03	3.4E−04	2.4E−04	1.1E−02	2.9E−02	1.9E−03	6.6E−03	4.7E−04	8.3E−05	2.4E−04

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

DRAFT

TABLE A.VII-36a
HAZARD QUOTIENTS FOR RME ON-PROPERTY FARMER
USE OF PERCHED GROUNDWATER IN PRODUCTION AREA, FUTURE LAND USE

Transfer Media:	Air				Soil						Perched Groundwater			Great Miami Aquifer Groundwater		
Exposure Pathways: / Toxicants	Inhalation	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products	Incidental Ingestion	Dermal Contact	External Exposure	Ingestion of Drinking Water	Inhalation of VOC's	Dermal Contact while Bathing	Ingestion of Vegetables and Fruits	Ingestion of Meat	Ingestion of Milk Products
cyanide	ND	1.8E-07	1.3E-12	1.6E-12	3.7E-01	3.0E-06	3.8E-06	1.1E-04	ND	NA	7.6E-01	ND	ND	NA	NA	NA
aluminum	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	NA	NA
antimony	ND	5.5E-04	4.0E-04	1.6E-04	6.3E-01	6.4E-01	2.5E-01	1.5E-01	3.1E-01	NA	5.8E+00	ND	1.1E-01	1.4E+00	5.4E-01	2.1E-01
arsenic	ND	1.4E-04	1.1E-04	1.3E-05	7.8E-02	1.9E-01	2.2E-02	8.9E-02	3.0E-03	NA	1.3E+00	ND	3.9E-03	1.9E-01	7.8E-02	9.4E-03
barium	5.9E-04	2.7E-05	4.5E-06	4.2E-05	1.8E-02	4.1E-03	3.8E-02	8.2E-03	2.9E-03	NA	1.1E-01	ND	3.5E-04	NA	NA	NA
beryllium	ND	8.2E-07	3.9E-07	1.4E-09	1.3E-04	2.5E-04	8.8E-07	5.9E-04	1.9E-02	NA	4.7E-02	ND	1.4E-02	4.6E-08	7.9E-09	2.9E-11
boron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.3E-01	ND	7.5E-03	NA	NA	NA
cadmium	ND	2.4E-04	6.7E-05	4.9E-04	2.8E-01	8.3E-02	6.1E-01	1.3E-02	8.3E-02	NA	4.4E-01	ND	2.5E-02	NA	NA	NA
chromium vi	ND	2.2E-05	3.8E-05	4.1E-05	8.8E-03	2.7E-02	3.0E-02	1.4E-02	9.6E-03	NA	6.5E-01	ND	8.3E-03	4.9E-04	2.6E-04	2.9E-04
cobalt	1.6E-02	9.7E-07	6.7E-06	2.7E-06	5.0E-04	6.1E-03	2.5E-03	4.9E-04	3.5E-04	NA	1.2E-02	ND	3.2E-05	NA	NA	NA
copper	ND	3.1E-05	6.9E-05	4.1E-05	1.0E-01	2.4E-01	1.5E-01	2.9E-03	ND	NA	2.0E-01	ND	ND	NA	NA	NA
lead	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	ND	ND	ND	NA	NA	NA
magnesium	ND	1.5E-05	1.3E-05	4.1E-05	8.3E-02	1.1E-01	3.5E-01	1.0E-03	6.7E-03	NA	9.3E-01	ND	5.3E-02	3.5E-01	1.8E-01	5.7E-01
manganese	3.1E-02	7.7E-05	1.8E-05	6.3E-05	7.4E-02	2.2E-02	7.7E-02	1.0E-02	1.1E-01	NA	5.4E-01	ND	5.2E-02	3.1E-01	3.7E-02	1.3E-01
mercury	3.3E-06	9.8E-06	7.9E-04	5.7E-06	1.6E-01	2.6E+01	1.9E-01	5.5E-03	5.8E-02	NA	1.8E-02	ND	3.5E-04	NA	NA	NA
molybdenum	ND	1.4E-05	3.7E-05	3.7E-05	3.3E-02	1.2E-01	1.2E-01	3.7E-03	3.2E-03	NA	2.2E-01	ND	1.7E-03	NA	NA	NA
nickel	ND	3.2E-05	3.1E-05	2.1E-05	2.7E-02	2.8E-02	1.8E-02	3.2E-03	5.0E-04	NA	9.2E-02	ND	2.6E-04	NA	NA	NA
selenium	ND	3.6E-06	9.7E-06	1.0E-05	1.6E-03	4.7E-03	5.0E-03	4.3E-04	1.7E-04	NA	3.5E-02	ND	1.2E-04	NA	NA	NA
silver	ND	3.5E-05	5.5E-05	1.5E-03	3.4E-02	6.0E-02	1.6E+00	2.3E-03	ND	NA	3.4E-01	ND	ND	NA	NA	NA
thallium	ND	1.5E-05	2.5E-04	5.1E-05	9.3E-04	1.9E-01	3.8E-02	1.6E-02	5.1E-03	NA	1.3E+02	ND	3.8E-01	NA	NA	NA
uranium-total	ND	2.9E-03	6.6E-05	8.0E-04	4.4E-01	5.8E-02	7.0E-01	7.6E-01	4.8E+00	NA	1.2E+03	ND	6.8E+01	3.8E+00	5.7E-02	7.1E-01
vanadium	ND	1.6E-05	1.2E-05	3.9E-07	4.2E-03	7.8E-03	2.5E-04	9.6E-03	6.2E-03	NA	1.0E+00	ND	6.0E-02	NA	NA	NA
zinc	ND	2.4E-04	5.7E-03	2.3E-03	1.5E-01	3.6E+00	1.5E+00	1.2E-03	1.5E-03	NA	2.7E-02	ND	1.9E-04	NA	NA	NA
acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.6E-03	ND	2.5E-05	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-09	2.4E-10	5.4E-10	1.3E-04	5.6E-05	1.3E-04	3.5E-05	5.0E-06	NA	8.2E-03	ND	2.2E-02	NA	NA	NA
bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.4E-03	ND	1.1E-04	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2E-01	ND	2.5E-01	NA	NA	NA
carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.2E-04	1.1E-01	1.8E-04	NA	NA	NA
chloroform	ND	2.7E-11	6.1E-15	8.2E-15	8.9E-04	2.5E-07	3.4E-07	2.3E-06	2.2E-05	NA	1.3E-01	ND	1.2E-02	NA	NA	NA
2-chlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.8E-01	ND	1.1E-01	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	ND	5.2E-02	ND	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA	3.5E-04	1.4E-07	1.9E-07	1.1E-06	1.2E-05	NA	5.5E-02	ND	9.0E-03	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.1E-01	ND	1.0E-02	NA	NA	NA
fluoranthene	NA	NA	NA	NA	1.3E-03	4.8E-04	6.1E-04	1.7E-04	3.7E-03	NA	NA	NA	NA	NA	NA	NA
methylene chloride	5.0E-12	4.1E-10	8.0E-15	1.6E-14	6.2E-04	1.7E-08	3.4E-08	7.3E-07	7.0E-06	NA	5.4E-03	1.4E-03	2.1E-04	NA	NA	NA
pyrene	NA	NA	NA	NA	9.7E-04	6.6E-04	8.4E-04	1.7E-04	3.8E-03	NA	NA	NA	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.6E-02	ND	1.7E+00	NA	NA	NA
phenanthrene	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.0E-01	ND	6.4E-01	NA	NA	NA
tetrachloroethene	ND	1.3E-03	9.1E-06	1.2E-05	3.3E-04	3.0E-06	3.8E-06	5.4E-06	7.7E-05	NA	1.9E-02	ND	1.5E-02	NA	NA	NA
toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8E-03	4.5E-02	2.8E-03	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA	ND	ND	ND	ND	ND	NA	ND	2.4E-02	ND	NA	NA	NA
1,1,2-trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.8E-03	ND	7.7E-04	NA	NA	NA
4,4-ddt	ND	3.7E-09	5.2E-08	6.5E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
dieldrin	ND	5.3E-09	5.2E-10	6.7E-10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ammonia	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
nitrate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.8E-01	ND	2.3E-03	NA	NA	NA
nitrite	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
fluoride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.7E-01	ND	1.6E-03	NA	NA	NA
chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	NA	NA	NA
TOTAL:	4.8E-02	5.6E-03	7.7E-03	5.6E-03	2.5E+00	3.1E+01	5.7E+00	1.1E+00	5.5E+00		1.3E+03	2.3E-01	7.1E+01	6.1E+00	8.9E-01	1.6E+00

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37a
ILCRs FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, PRODUCTION AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	3.3E-13	5.8E-10	NA	5.9E-08
Np_{237+1d}	2.3E-10	6.8E-09	NA	1.9E-08
Pu_{238}	8.7E-09	7.2E-08	NA	1.3E-11
$Pu_{239/240}$	1.2E-09	2.3E-08	NA	3.9E-12
Ra_{226+8d}	3.1E-08	1.6E-07	NA	1.8E-06
Ru_{106}	7.9E-12	NA	NA	NA
Sr_{90+1d}	2.4E-12	2.1E-08	NA	ND
Tc_{99}	1.7E-12	2.2E-09	NA	1.4E-12
Th_{230}	2.9E-07	6.9E-08	NA	4.1E-10
$Th_{232+10d}$	8.2E-08	3.8E-07	NA	2.7E-05
U_{234}	6.5E-07	5.9E-07	NA	1.6E-09
$U_{235/236}$	5.2E-08	4.9E-08	NA	1.1E-06
U_{238+2d}	1.4E-06	1.3E-06	NA	2.4E-06
Rn_{222+4d}	5.4E-07	NA	NA	NA
Total Radionuclides	3.1E-06	2.7E-06		3.3E-05
Chemicals				
arsenic	2.1E-09	8.4E-07	1.1E-08	NA
beryllium	1.3E-10	3.8E-07	3.8E-07	NA
cadmium	3.7E-10	ND	ND	NA
chromium vi	1.2E-08	ND	ND	NA
nickel	2.8E-10	ND	ND	NA
benzene	4.1E-18	3.6E-12	2.4E-14	NA
bis(2-ethylhexyl)phthalate	ND	5.8E-10	3.1E-11	NA
bromodichloromethane	NA	2.0E-11	7.8E-11	NA
carbazole	ND	1.4E-10	5.6E-10	NA
carbon tetrachloride	NA	1.2E-11	4.2E-11	NA
chloroform	8.1E-17	2.6E-12	9.5E-12	NA
1,1-dichloroethene	NA	3.8E-10	1.5E-09	NA
1,2-dichloroethane	NA	4.7E-12	1.9E-11	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.1E-16	7.5E-12	2.7E-11	NA
n-nitrosodiphenylamine	ND	9.7E-11	3.9E-10	NA
n-nitrosodipropylamine	ND	1.8E-09	7.1E-09	NA
pentachlorophenol	NA	2.5E-10	8.8E-10	NA
tetrachloroethene	8.9E-11	7.3E-10	3.9E-09	NA
trichloroethene	5.3E-10	1.7E-10	6.3E-10	NA
vinyl chloride	NA	4.2E-10	1.7E-09	NA
benzo(a)anthracene	7.4E-13	7.1E-09	7.1E-09	NA
benzo(a)pyrene	5.6E-12	3.9E-07	3.9E-07	NA
benzo(b)fluoranthene	7.2E-13	5.2E-08	5.2E-08	NA
benzo(k)fluoranthene	2.4E-13	1.7E-08	1.7E-08	NA
chrysene	5.1E-15	4.4E-10	4.4E-10	NA
dibenzo(a,h)anthracene	1.7E-12	1.2E-07	1.2E-07	NA
indeno(1,2,3-cd)pyrene	1.0E-12	8.8E-08	8.8E-08	NA
aroclor-1254	ND	8.2E-07	7.9E-07	NA
aroclor-1260	ND	2.0E-07	1.9E-07	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.2E-15	NA	NA	NA
dieldrin	1.9E-14	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	6.4E-10	4.6E-10	NA
octachlorodibenzo-p-dioxin	1.9E-14	2.2E-10	1.6E-10	NA
octachlorodibenzofuran	5.4E-15	2.6E-10	1.9E-10	NA
SUM (TEF for PAHs):	1.6E-08	2.9E-06	2.1E-06	
SUM (BaP for PAHs):	1.6E-08	4.0E-06	3.1E-06	
TOTAL RAD. & CHEM.	3.1E-06	5.6E-06	2.1E-06	3.3E-05
TOTAL RAD. & CHEM.	3.1E-06	6.6E-06	3.1E-06	3.3E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37b
ILCRs FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, NORTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	3.8E-14	1.8E-09	NA	1.8E-07
Np_{237+1d}	1.5E-11	1.5E-08	NA	4.2E-08
Pu_{238}	4.8E-10	NA	NA	NA
$Pu_{239/240}$	1.1E-10	NA	NA	NA
Ra_{226+8d}	2.9E-09	NA	NA	NA
Ru_{106}	1.0E-12	NA	NA	NA
Sr_{90+1d}	2.2E-13	4.2E-09	NA	ND
Tc_{99}	2.2E-13	1.7E-10	NA	1.2E-13
Th_{230}	1.3E-08	1.9E-09	NA	1.1E-11
$Th_{232+10d}$	5.4E-09	NA	NA	NA
U_{234}	3.4E-08	5.4E-09	NA	1.4E-11
$U_{235/236}$	2.9E-09	9.4E-10	NA	2.0E-08
U_{238+2d}	8.2E-08	1.2E-08	NA	2.2E-08
Rn_{222+4d}	8.3E-08	NA	NA	NA
Total Radionuclides	2.2E-07	4.1E-08		2.7E-07
Chemicals				
arsenic	5.6E-10	NA	NA	NA
beryllium	3.3E-11	3.2E-07	3.2E-07	NA
cadmium	1.4E-10	ND	ND	NA
chromium vi	3.0E-09	ND	ND	NA
nickel	8.2E-11	ND	ND	NA
benzene	1.4E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.9E-10	2.1E-11	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.7E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	1.3E-17	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	4.3E-10	NA	NA	NA
trichloroethene	2.5E-09	2.1E-12	7.6E-12	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	9.2E-14	2.5E-10	2.5E-10	NA
benzo(a)pyrene	7.5E-13	NA	NA	NA
benzo(b)fluoranthene	1.1E-13	2.4E-09	2.4E-09	NA
benzo(k)fluoranthene	4.2E-14	1.1E-09	1.1E-09	NA
chrysene	7.9E-16	2.6E-11	2.6E-11	NA
dibenzo(a,h)anthracene	2.4E-13	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.7E-13	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.6E-16	NA	NA	NA
dieldrin	1.6E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	3.8E-15	NA	NA	NA
octachlorodibenzofuran	1.8E-15	NA	NA	NA
SUM (TEF for PAHs):	6.7E-09	3.3E-07	3.3E-07	
SUM (BaP for PAHs):	6.7E-09	3.7E-07	3.7E-07	
TOTAL RAD. & CHEM.	2.3E-07	3.7E-07	3.3E-07	2.7E-07
TOTAL RAD. & CHEM.	2.3E-07	4.1E-07	3.7E-07	2.7E-07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37c
ILCRs FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	1.4E-13	1.9E-09	NA	1.9E-07
Np_{237+1d}	5.0E-11	5.3E-09	NA	1.5E-08
Pu_{238}	1.6E-09	NA	NA	NA
$Pu_{239/240}$	3.5E-10	5.0E-09	NA	8.4E-13
Ra_{226+8d}	3.9E-08	2.8E-08	NA	3.1E-07
Ru_{106}	1.5E-12	2.0E-09	NA	ND
Sr_{90+1d}	1.5E-12	3.1E-08	NA	ND
Tc_{99}	2.0E-12	4.0E-10	NA	2.6E-13
Th_{230}	3.5E-07	1.5E-08	NA	9.0E-11
$Th_{232+10d}$	4.2E-08	3.3E-07	NA	2.3E-05
U_{234}	2.0E-07	4.4E-08	NA	1.2E-10
$U_{235/236}$	1.4E-08	1.7E-08	NA	3.6E-07
U_{238+2d}	3.9E-07	7.7E-08	NA	1.4E-07
Rn_{222+4d}	3.0E-07	ND	NA	ND
Total Radionuclides	1.3E-06	5.5E-07		2.4E-05
Chemicals				
arsenic	1.1E-09	7.5E-07	9.4E-09	NA
beryllium	7.3E-11	2.2E-07	2.2E-07	NA
cadmium	2.3E-10	ND	ND	NA
chromium vi	6.5E-09	ND	ND	NA
nickel	1.5E-10	ND	ND	NA
benzene	6.2E-18	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.2E-10	6.3E-12	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	8.4E-17	5.7E-13	2.1E-12	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	2.5E-16	1.2E-11	4.2E-11	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	1.5E-09	5.3E-09	NA
tetrachloroethene	9.7E-11	4.3E-11	2.3E-10	NA
trichloroethene	5.8E-10	5.2E-13	1.9E-12	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	5.4E-13	1.9E-09	1.9E-09	NA
benzo(a)pyrene	4.5E-12	9.8E-08	9.8E-08	NA
benzo(b)fluoranthene	5.3E-13	4.2E-08	4.2E-08	NA
benzo(k)fluoranthene	2.4E-13	3.1E-09	3.1E-09	NA
chrysene	3.4E-15	2.0E-10	2.0E-10	NA
dibenzo(a,h)anthracene	1.5E-12	1.4E-08	1.4E-08	NA
indeno(1,2,3-cd)pyrene	7.9E-13	1.3E-08	1.3E-08	NA
aroclor-1254	ND	5.3E-09	5.1E-09	NA
aroclor-1260	ND	9.8E-07	9.4E-07	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	2.4E-16	NA	NA	NA
dieldrin	3.9E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	7.7E-15	NA	NA	NA
octachlorodibenzofuran	7.9E-15	1.1E-05	7.6E-06	NA
SUM (TEF for PAHs):	8.7E-09	1.3E-05	8.9E-06	
SUM (BaP for PAHs):	8.7E-09	1.3E-05	9.4E-06	
TOTAL RAD. & CHEM.	1.4E-06	1.3E-05	8.9E-06	2.4E-05
TOTAL RAD. & CHEM.	1.4E-06	1.4E-05	9.4E-06	2.4E-05

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37d
ILCRs FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, SOUTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	6.3E-14	1.2E-09	NA	1.2E-07
Np_{237+1d}	3.1E-11	NA	NA	NA
Pu_{238}	2.2E-09	NA	NA	NA
$Pu_{239/240}$	2.5E-10	1.2E-08	NA	1.9E-12
Ra_{226+8d}	5.9E-09	NA	NA	NA
Ru_{106}	7.2E-13	NA	NA	NA
Sr_{90+1d}	5.2E-13	6.4E-09	NA	ND
Tc_{99}	5.8E-13	NA	NA	NA
Th_{230}	9.3E-08	2.0E-09	NA	1.2E-11
$Th_{232+10d}$	2.3E-08	NA	NA	NA
U_{234}	1.5E-07	9.0E-09	NA	2.4E-11
$U_{235/236}$	1.1E-08	1.1E-09	NA	2.3E-08
U_{238+2d}	3.3E-07	1.1E-08	NA	2.0E-08
Rn_{222+4d}	3.6E-08	NA	NA	NA
Total Radionuclides	6.5E-07	4.2E-08		1.7E-07
Chemicals				
arsenic	5.9E-10	NA	NA	NA
beryllium	3.9E-11	2.8E-07	2.8E-07	NA
cadmium	9.5E-11	ND	ND	NA
chromium vi	3.1E-09	ND	ND	NA
nickel	7.1E-11	ND	ND	NA
benzene	7.4E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	3.4E-11	1.8E-12	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.5E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.1E-17	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.3E-11	7.3E-12	3.9E-11	NA
trichloroethene	1.4E-10	1.0E-12	3.8E-12	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.3E-13	NA	NA	NA
benzo(a)pyrene	9.9E-13	NA	NA	NA
benzo(b)fluoranthene	1.3E-13	NA	NA	NA
benzo(k)fluoranthene	4.5E-14	NA	NA	NA
chrysene	9.0E-16	NA	NA	NA
dibenzo(a,h)anthracene	3.0E-13	NA	NA	NA
indeno(1,2,3-cd)pyrene	1.8E-13	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.4E-16	NA	NA	NA
dieldrin	3.1E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	1.8E-15	NA	NA	NA
octachlorodibenzofuran	9.7E-16	NA	NA	NA
SUM (TEF for PAHs):	4.1E-09	2.8E-07	2.8E-07	
SUM (BaP for PAHs):	4.1E-09	2.8E-07	2.8E-07	
TOTAL RAD. & CHEM.	6.6E-07	3.3E-07	2.8E-07	1.7E-07
TOTAL RAD. & CHEM.	6.6E-07	3.3E-07	2.8E-07	1.7E-07

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII–37e
ILCRs FOR ON–PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	6.5E–14	1.8E–09	NA	1.8E–07
Np_{237+1d}	3.8E–11	NA	NA	NA
Pu_{238}	2.6E–09	NA	NA	NA
$Pu_{239/240}$	2.9E–10	NA	NA	NA
Ra_{226+8d}	4.9E–09	NA	NA	NA
Ru_{106}	1.2E–12	NA	NA	NA
Sr_{90+1d}	5.0E–13	4.8E–09	NA	ND
Tc_{99}	3.5E–13	1.4E–10	NA	9.3E–14
Th_{230}	9.6E–08	2.5E–09	NA	1.5E–11
$Th_{232+10d}$	2.0E–08	NA	NA	NA
U_{234}	1.6E–07	2.6E–08	NA	6.9E–11
$U_{235/236}$	1.3E–08	3.3E–09	NA	7.0E–08
U_{238+2d}	3.6E–07	8.5E–08	NA	1.6E–07
Rn_{222+4d}	2.8E–08	NA	NA	NA
Total Radionuclides	6.9E–07	1.2E–07		4.1E–07
Chemicals				
arsenic	6.8E–10	NA	NA	NA
beryllium	3.9E–11	3.4E–07	3.4E–07	NA
cadmium	9.5E–11	ND	ND	NA
chromium vi	3.0E–09	NA	NA	NA
nickel	7.1E–11	NA	NA	NA
benzene	6.3E–19	NA	NA	NA
bis(2–ethylhexyl)phthalate	ND	4.6E–10	2.5E–11	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	6.6E–12	2.6E–11	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.0E–17	NA	NA	NA
1,1–dichloroethene	NA	NA	NA	NA
1,2–dichloroethane	NA	NA	NA	NA
bis(2–chloroisopropyl)ether	NA	NA	NA	NA
4–methylphenol	NA	NA	NA	NA
methylene chloride	2.8E–17	NA	NA	NA
n–nitrosodiphenylamine	ND	NA	NA	NA
n–nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.9E–11	4.9E–12	2.6E–11	NA
trichloroethene	1.8E–10	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.3E–13	3.5E–10	3.5E–10	NA
benzo(a)pyrene	9.3E–13	2.1E–08	2.1E–08	NA
benzo(b)fluoranthene	1.2E–13	2.8E–09	2.8E–09	NA
benzo(k)fluoranthene	3.9E–14	1.4E–09	1.4E–09	NA
chrysene	9.3E–16	3.0E–11	3.0E–11	NA
dibenzo(a,h)anthracene	2.6E–13	NA	NA	NA
indeno(1,2,3–cd)pyrene	1.8E–13	4.7E–09	4.7E–09	NA
aroclor–1254	ND	NA	NA	NA
aroclor–1260	ND	NA	NA	NA
4,4–ddt	ND	NA	NA	NA
4,4–dde	ND	NA	NA	NA
chlordane	1.6E–16	NA	NA	NA
dieldrin	3.4E–15	NA	NA	NA
heptachlorodibenzo–p–dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo–p–dioxin	2.1E–15	NA	NA	NA
octachlorodibenzofuran	7.6E–16	NA	NA	NA
SUM (TEF for PAHs):	4.0E–09	3.7E–07	3.7E–07	
SUM (BaP for PAHs):	4.0E–09	4.4E–07	4.4E–07	
TOTAL RAD. & CHEM.	7.0E–07	5.0E–07	3.7E–07	4.1E–07
TOTAL RAD. & CHEM.	7.0E–07	5.6E–07	4.4E–07	4.1E–07

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37f
ILCRs FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, WASTE PIT AREA

Transfer Media:	Air	Soil		
Exposure Pathways: Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	5.9E-14	2.6E-09	NA	2.6E-07
Np_{237+1d}	3.5E-11	2.0E-08	NA	5.6E-08
Pu_{238}	6.6E-10	5.5E-09	NA	1.0E-12
$Pu_{239/240}$	1.5E-10	2.7E-08	NA	4.5E-12
Ra_{226+8d}	6.1E-09	2.3E-06	NA	2.5E-05
Ru_{106}	3.4E-12	2.4E-09	NA	ND
Sr_{90+1d}	3.9E-13	5.3E-09	NA	ND
Tc_{99}	2.6E-13	9.7E-10	NA	6.4E-13
Th_{230}	3.3E-08	3.9E-08	NA	2.3E-10
$Th_{232+10d}$	8.1E-09	3.6E-08	NA	2.6E-06
U_{234}	4.4E-08	4.4E-08	NA	1.2E-10
$U_{235/236}$	4.1E-09	1.9E-09	NA	4.0E-08
U_{238+2d}	1.0E-07	1.7E-07	NA	3.1E-07
Rn_{222+4d}	8.9E-08	NA	NA	NA
Total Radionuclides	2.9E-07	2.6E-06		2.8E-05
Chemicals				
arsenic	2.1E-09	2.8E-06	3.6E-08	NA
beryllium	5.9E-11	3.1E-07	3.1E-07	NA
cadmium	2.7E-10	ND	ND	NA
chromium vi	5.8E-09	ND	ND	NA
nickel	1.6E-10	ND	ND	NA
benzene	8.6E-19	4.1E-12	2.7E-14	NA
bis(2-ethylhexyl)phthalate	ND	2.4E-09	1.3E-10	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.2E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	4.1E-17	9.9E-12	3.5E-11	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.0E-10	2.4E-12	1.3E-11	NA
trichloroethene	1.2E-09	9.3E-12	3.4E-11	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	1.1E-13	8.8E-08	8.8E-08	NA
benzo(a)pyrene	9.0E-13	3.0E-06	3.0E-06	NA
benzo(b)fluoranthene	1.1E-13	9.7E-07	9.7E-07	NA
benzo(k)fluoranthene	4.5E-14	1.1E-09	1.1E-09	NA
chrysene	7.8E-16	5.8E-09	5.8E-09	NA
dibenzo(a,h)anthracene	2.5E-13	3.4E-07	3.4E-07	NA
indeno(1,2,3-cd)pyrene	1.6E-13	4.6E-07	4.6E-07	NA
aroclor-1254	ND	5.1E-09	4.9E-09	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	3.1E-16	NA	NA	NA
dieldrin	2.8E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	6.5E-15	6.3E-09	4.6E-09	NA
octachlorodibenzofuran	1.1E-15	NA	NA	NA
SUM (TEF for PAHs):	9.7E-09	8.0E-06	5.2E-06	
SUM (BaP for PAHs):	9.7E-09	1.8E-05	1.5E-05	
TOTAL RAD. & CHEM.	3.0E-07	1.1E-05	5.2E-06	2.8E-05
TOTAL RAD. & CHEM.	3.0E-07	2.1E-05	1.5E-05	2.8E-05

NA – Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND – No data for toxicity assessment for exposure pathway.

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TABLE A.VII-37g
ILCRs FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SHOOTING RANGE

Transfer Media:	Air	Soil		
Exposure Pathways: / Contaminants of Concern	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
Radionuclides				
Cs_{137+1d}	6.6E-14	NA	NA	NA
Np_{237+1d}	3.3E-11	NA	NA	NA
Pu_{238}	2.0E-09	NA	NA	NA
$Pu_{239/240}$	2.5E-10	3.3E-08	NA	5.5E-12
Ra_{226+8d}	NA	NA	NA	NA
Ru_{106}	8.2E-13	NA	NA	NA
Sr_{90+1d}	6.7E-13	5.1E-09	NA	ND
Tc_{99}	1.1E-12	NA	NA	NA
Th_{230}	1.2E-07	NA	NA	NA
$Th_{232+10d}$	NA	NA	NA	NA
U_{234}	1.6E-07	4.9E-09	NA	1.3E-11
$U_{235/236}$	1.2E-08	1.1E-09	NA	2.3E-08
U_{238+2d}	3.3E-07	6.3E-09	NA	1.2E-08
Rn_{222+4d}	5.4E-08	NA	NA	NA
Total Radionuclides	6.8E-07	5.0E-08		3.5E-08
Chemicals				
arsenic	8.8E-10	1.1E-06	1.4E-08	NA
beryllium	5.3E-11	1.5E-07	1.5E-07	NA
cadmium	1.5E-10	NA	NA	NA
chromium vi	4.7E-09	ND	ND	NA
nickel	1.0E-10	NA	NA	NA
benzene	9.7E-19	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	4.1E-11	2.2E-12	NA
bromodichloromethane	NA	NA	NA	NA
carbazole	ND	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
chloroform	1.7E-17	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethane	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
methylene chloride	5.3E-17	NA	NA	NA
n-nitrosodiphenylamine	ND	NA	NA	NA
n-nitrosodipropylamine	ND	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
tetrachloroethene	2.5E-11	NA	NA	NA
trichloroethene	1.5E-10	NA	NA	NA
vinyl chloride	NA	NA	NA	NA
benzo(a)anthracene	NA	NA	NA	NA
benzo(a)pyrene	1.2E-12	NA	NA	NA
benzo(b)fluoranthene	1.5E-13	NA	NA	NA
benzo(k)fluoranthene	5.5E-14	NA	NA	NA
chrysene	1.0E-15	NA	NA	NA
dibenzo(a,h)anthracene	3.7E-13	NA	NA	NA
indeno(1,2,3-cd)pyrene	2.1E-13	NA	NA	NA
aroclor-1254	ND	NA	NA	NA
aroclor-1260	ND	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
4,4-dde	ND	NA	NA	NA
chlordane	1.4E-16	NA	NA	NA
dieldrin	3.1E-15	NA	NA	NA
heptachlorodibenzo-p-dioxin	NA	NA	NA	NA
heptachlorodibenzofuran	NA	NA	NA	NA
octachlorodibenzo-p-dioxin	2.1E-15	NA	NA	NA
octachlorodibenzofuran	1.2E-15	NA	NA	NA
SUM (TEF for PAHs):	6.0E-09	1.2E-06	1.6E-07	
SUM (BaP for PAHs):	6.1E-09	1.2E-06	1.6E-07	
TOTAL RAD. & CHEM.	6.9E-07	1.3E-06	1.6E-07	3.5E-08
TOTAL RAD. & CHEM.	6.9E-07	1.3E-06	1.6E-07	3.5E-08

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38a
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, PRODUCTION AREA

Transfer Media:	Air	Soil		
Exposure Pathways: / Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.2E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	8.8E-02	7.0E-02	NA
arsenic	ND	2.1E-01	2.6E-03	NA
barium	1.0E-03	1.6E-02	2.2E-03	NA
beryllium	ND	1.5E-03	1.8E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	2.6E-02	6.1E-02	NA
chromium vi	ND	4.3E-02	1.1E-02	NA
cobalt	3.7E-02	2.2E-03	5.8E-04	NA
copper	ND	4.2E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	3.5E-02	8.4E-02	NA
manganese	7.6E-02	8.9E-02	3.6E-01	NA
mercury	4.8E-06	3.0E-03	1.2E-02	NA
molybdenum	ND	1.5E-02	4.9E-03	NA
nickel	ND	1.7E-02	1.0E-03	NA
selenium	ND	7.3E-04	1.1E-04	NA
silver	ND	7.7E-03	ND	NA
thallium	ND	6.9E-02	8.3E-03	NA
uranium-total	ND	5.5E-01	1.3E+00	NA
vanadium	ND	5.0E-02	1.2E-02	NA
zinc	ND	7.0E-03	3.3E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.2E-05	3.3E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	1.4E-06	4.9E-06	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.5E-06	5.5E-06	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	8.5E-05	7.1E-04	NA
methylene chloride	2.7E-11	3.7E-06	1.3E-05	NA
pyrene	NA	1.8E-04	1.5E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	5.9E-05	2.1E-04	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.2E-05	6.4E-05	NA
toluene	NA	6.9E-08	2.5E-08	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	1.1E-01	1.2E+00	2.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38b
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, NORTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	1.8E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	8.8E-02	7.0E-02	NA
arsenic	ND	2.1E-01	2.6E-03	NA
barium	1.0E-03	1.6E-02	2.2E-03	NA
beryllium	ND	1.5E-03	1.8E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	2.6E-02	6.1E-02	NA
chromium vi	ND	4.3E-02	1.1E-02	NA
cobalt	3.7E-02	2.2E-03	5.8E-04	NA
copper	ND	4.2E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	3.5E-02	8.4E-02	NA
manganese	7.6E-02	8.9E-02	3.6E-01	NA
mercury	4.8E-06	3.0E-03	1.2E-02	NA
molybdenum	ND	1.5E-02	4.9E-03	NA
nickel	ND	1.7E-02	1.0E-03	NA
selenium	ND	7.3E-04	1.1E-04	NA
silver	ND	7.7E-03	ND	NA
thallium	ND	6.9E-02	8.3E-03	NA
uranium-total	ND	5.5E-01	1.3E+00	NA
vanadium	ND	5.0E-02	1.2E-02	NA
zinc	ND	7.0E-03	3.3E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.2E-05	3.3E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	1.4E-06	4.9E-06	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.5E-06	5.5E-06	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	8.5E-05	7.1E-04	NA
methylene chloride	2.7E-11	3.7E-06	1.3E-05	NA
pyrene	NA	1.8E-04	1.5E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	5.9E-05	2.1E-04	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.2E-05	6.4E-05	NA
toluene	NA	6.9E-08	2.5E-08	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	1.1E-01	1.2E+00	2.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38c
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, NORTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.8E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	8.8E-02	7.0E-02	NA
arsenic	ND	2.1E-01	2.6E-03	NA
barium	1.0E-03	1.6E-02	2.2E-03	NA
beryllium	ND	1.5E-03	1.8E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	2.6E-02	6.1E-02	NA
chromium vi	ND	4.3E-02	1.1E-02	NA
cobalt	3.7E-02	2.2E-03	5.8E-04	NA
copper	ND	4.2E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	3.5E-02	8.4E-02	NA
manganese	7.6E-02	8.9E-02	3.6E-01	NA
mercury	4.8E-06	3.0E-03	1.2E-02	NA
molybdenum	ND	1.5E-02	4.9E-03	NA
nickel	ND	1.7E-02	1.0E-03	NA
selenium	ND	7.3E-04	1.1E-04	NA
silver	ND	7.7E-03	ND	NA
thallium	ND	6.9E-02	8.3E-03	NA
uranium-total	ND	5.5E-01	1.3E+00	NA
vanadium	ND	5.0E-02	1.2E-02	NA
zinc	ND	7.0E-03	3.3E-03	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	6.2E-05	3.3E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	1.4E-06	4.9E-06	NA
1,1-dichloroethane	NA	ND	ND	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	1.5E-06	5.5E-06	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	8.5E-05	7.1E-04	NA
methylene chloride	2.7E-11	3.7E-06	1.3E-05	NA
pyrene	NA	1.8E-04	1.5E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	5.9E-05	2.1E-04	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.2E-05	6.4E-05	NA
toluene	NA	6.9E-08	2.5E-08	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	1.1E-01	1.2E+00	2.0E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38d
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER FUTURE LAND USE, SOUTHEAST AREA

Transfer Media:	Air	Soil		
Exposure Pathways:		Incidental	Dermal	External
Toxicants	Inhalation	Ingestion	Contact	Exposure
cyanide	ND	2.0E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	1.8E-01	1.5E-01	NA
arsenic	ND	NA	NA	NA
barium	5.8E-04	NA	NA	NA
beryllium	ND	1.9E-03	2.3E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	1.9E-02	4.6E-02	NA
chromium vi	ND	1.8E-02	4.9E-03	NA
cobalt	1.9E-02	NA	NA	NA
copper	ND	2.5E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	1.3E-02	3.0E-02	NA
manganese	4.0E-02	NA	NA	NA
mercury	2.7E-06	NA	NA	NA
molybdenum	ND	1.1E-02	3.5E-03	NA
nickel	ND	5.1E-03	3.1E-04	NA
selenium	ND	1.1E-03	1.6E-04	NA
silver	ND	1.2E-02	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	3.2E-02	7.7E-02	NA
vanadium	ND	NA	NA	NA
zinc	ND	1.4E-03	6.8E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	1.7E-05	9.3E-07	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	4.3E-12	NA	NA	NA
pyrene	NA	1.3E-05	1.1E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	2.1E-06	1.1E-05	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	6.0E-02	3.0E-01	3.3E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38e
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, SOUTHWEST AREA

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	1.5E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	NA	NA	NA
arsenic	ND	NA	NA	NA
barium	6.2E-04	9.7E-03	1.3E-03	NA
beryllium	ND	2.3E-03	2.8E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	8.9E-03	2.1E-02	NA
chromium vi	ND	NA	NA	NA
cobalt	1.9E-02	NA	NA	NA
copper	ND	2.5E-03	ND	NA
lead	ND	NA	NA	NA
magnesium	ND	NA	NA	NA
manganese	4.2E-02	6.1E-02	2.4E-01	NA
mercury	2.9E-06	NA	NA	NA
molybdenum	ND	NA	NA	NA
nickel	ND	NA	NA	NA
selenium	ND	NA	NA	NA
silver	ND	6.6E-04	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	2.2E-01	5.2E-01	NA
vanadium	ND	NA	NA	NA
zinc	ND	1.9E-03	9.3E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.4E-04	1.3E-05	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	3.3E-05	2.7E-04	NA
methylene chloride	3.0E-12	NA	NA	NA
pyrene	NA	3.4E-05	2.9E-04	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	1.4E-06	7.3E-06	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	6.2E-02	3.1E-01	8.2E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38f
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, WASTE PIT AREA

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	5.1E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	5.2E-01	4.1E-01	NA
arsenic	ND	7.8E-01	9.9E-03	NA
barium	8.0E-04	1.7E-02	2.3E-03	NA
beryllium	ND	2.1E-03	2.5E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	4.0E-02	9.5E-02	NA
chromium vi	ND	3.2E-02	8.5E-03	NA
cobalt	3.8E-02	2.6E-03	6.9E-04	NA
copper	ND	8.2E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	9.0E-02	1.1E-01	4.3E-01	NA
mercury	2.4E-06	NA	NA	NA
molybdenum	ND	1.5E-02	4.8E-03	NA
nickel	ND	1.2E-02	7.5E-04	NA
selenium	ND	4.5E-03	6.8E-04	NA
silver	ND	1.4E-02	ND	NA
thallium	ND	NA	NA	NA
uranium-total	ND	1.8E-01	4.4E-01	NA
vanadium	ND	3.8E-02	9.1E-03	NA
zinc	ND	2.3E-03	1.1E-03	NA
acetone	NA	5.4E-06	2.3E-06	NA
bis(2-ethylhexyl)phthalate	ND	1.3E-03	6.8E-05	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	5.8E-03	4.9E-02	NA
methylene chloride	4.3E-12	3.1E-06	1.1E-05	NA
pyrene	NA	6.2E-04	5.2E-03	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	ND	ND	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	ND	6.9E-07	3.7E-06	NA
toluene	NA	4.8E-07	1.7E-07	NA
1,1,1-trichloroethane	NA	ND	ND	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	1.3E-01	1.8E+00	1.5E+00	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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TABLE A.VII-38g
HAZARD QUOTIENTS FOR ON-PROPERTY HOME BUILDER
FUTURE LAND USE, SHOOTING RANGE

Transfer Media:	Air	Soil		
Exposure Pathways: Toxicants	Inhalation	Incidental Ingestion	Dermal Contact	External Exposure
cyanide	ND	6.8E-04	ND	NA
aluminum	ND	ND	ND	NA
antimony	ND	7.0E-02	5.6E-02	NA
arsenic	ND	3.0E-01	3.8E-03	NA
barium	7.8E-04	8.7E-03	1.1E-03	NA
beryllium	ND	1.0E-03	1.2E-02	NA
boron	NA	NA	NA	NA
cadmium	ND	NA	NA	NA
chromium vi	ND	5.9E-02	1.6E-02	NA
cobalt	2.8E-02	NA	NA	NA
copper	ND	3.4E-03	ND	NA
lead	ND	ND	ND	NA
magnesium	ND	NA	NA	NA
manganese	5.8E-02	4.5E-02	1.8E-01	NA
mercury	3.7E-06	1.4E-01	5.8E-01	NA
molybdenum	ND	1.2E-02	3.7E-03	NA
nickel	ND	NA	NA	NA
selenium	ND	NA	NA	NA
silver	ND	NA	NA	NA
thallium	ND	NA	NA	NA
uranium-total	ND	4.3E-02	1.0E-01	NA
vanadium	ND	NA	NA	NA
zinc	ND	2.0E-03	9.6E-04	NA
acetone	NA	NA	NA	NA
bis(2-ethylhexyl)phthalate	ND	2.1E-05	1.1E-06	NA
bromodichloromethane	NA	NA	NA	NA
carbon tetrachloride	NA	NA	NA	NA
carbon disulfide	NA	NA	NA	NA
bromomethane	NA	NA	NA	NA
chloroform	ND	NA	NA	NA
1,1-dichloroethane	NA	NA	NA	NA
1,1-dichloroethene	NA	NA	NA	NA
1,2-dichloroethene	NA	NA	NA	NA
bis(2-chloroisopropyl)ether	NA	NA	NA	NA
4-methylphenol	NA	NA	NA	NA
fluoranthene	NA	NA	NA	NA
methylene chloride	5.7E-12	NA	NA	NA
pyrene	NA	NA	NA	NA
2-nitroanaline	NA	NA	NA	NA
4-nitroanaline	NA	NA	NA	NA
pentachlorophenol	NA	NA	NA	NA
phenanthrene	NA	NA	NA	NA
tributyl phosphate	NA	NA	NA	NA
tetrachloroethene	NA	NA	NA	NA
toluene	NA	NA	NA	NA
1,1,1-trichloroethane	NA	NA	NA	NA
4,4-ddt	ND	NA	NA	NA
di-n-octylphthalate	NA	NA	NA	NA
delta bhc	NA	NA	NA	NA
dieldrin	ND	NA	NA	NA
chlordane	NA	NA	NA	NA
gamma chlordane	NA	NA	NA	NA
ammonia	NA	NA	NA	NA
nitrate	NA	NA	NA	NA
fluoride	NA	NA	NA	NA
chloride	NA	NA	NA	NA
sulfate	NA	NA	NA	NA
TOTAL:	8.6E-02	6.9E-01	9.5E-01	

NA - Not applicable. Chemical not a chemical of interest for media or exposure pathway not applicable.
ND - No data for toxicity assessment for exposure pathway.

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ATTACHMENT A.VIII

CALCULATION OF RADON-222 IN HOMES LOCATED ON RADIUM-BEARING SOIL

Radon (Rn) is a colorless, odorless, radioactive, inert gas produced by the radioactive decay of radium (Ra). Radon levels in homes are primarily associated with the decay of Ra in underlying soils. Radon from soil enters dwellings by diffusion through foundation materials and by advective flow through cracks in the substructure. A resident living in a home built over soil containing Ra may incur exposures to this Rn gas while indoors. Risks from these exposures must be considered when evaluating risks to a receptor living within Operable Unit 5.

A number of factors affect the Rn levels in a home. One of the most important considerations is the strength of the Ra source producing the Rn entering the home. As the Ra concentration in the underlying soil increases, Rn levels in a given home can also be expected to increase. Since Ra concentrations within the operable unit range up to about 3000 pCi/g, a comparable range of concentrations was evaluated in this study.

The distribution of Ra-contaminated soil beneath a house may also impact Rn levels in the home. For example, increasing the area of Ra-226-bearing soil in contact with a hypothetical house's foundation would probably increase the Rn-222 level in that home. Radium contamination within Operable Unit 5 is generally limited to a layer of surface contamination extending about 2 feet down. Since Rn levels in homes are related to the surface area of Ra-bearing soil in contact with the house's foundation, both basement and slab-on-grade construction were evaluated to determine which building type produced the largest contact area. For a 1500 ft^2 home (30 feet by 50 feet) with a basement, the surface area of the walls in contact with a 2-foot-thick surface layer of Ra-bearing soil is 320 ft^2. Using slab-on-grade construction, the surface area in contact with this same source layer is 1500 ft^2. Therefore, a house featuring slab-on-grade construction was chosen as the home type evaluated.

As buildings age, cracks may develop in their foundations. Cracked foundations allow more Rn to enter the building than intact construction allows. A 1-cm-wide perimeter crack was included in the model to account for this possibility in the hypothetical house used in this study.

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Both diffusion through foundation materials and advective flow through cracks in the foundation may contribute to Rn levels in a home. RAETRAD, a computer code developed by Rogers and Associates Engineering, was selected to perform this evaluation because it calculates the contribution from both Rn entry modes (Nielson et al., 1992; Rogers and Nielson, 1990; and EPA, 1991). The code solves the differential equation for steady-state air flow and the differential Rn balance equation for steady-state Rn generation and transport (Rogers and Nielson, 1991 and 1992). RAETRAD was developed under the Florida Radon Research Program, co-sponsored by the Florida Department of Community Affairs and the U.S. Environmental Protection Agency. It is currently being added to the revised Risk Assessment Work Plan Addendum and represents an enhancement of the methodology used by one of its predecessors, RAECOM (DOE, 1992).

Radium-226 concentrations of 2, 3, 10, 30, 100, 300, 1000, and 3000 pCi/g were input into the code during successive runs to generate the range of indoor Rn concentrations which might be of interest at the Fernald Environmental Management Project. Site-specific information on soil was used when available, and the code's default information was used when site data were not available. Exhibit A.7-1 contains the input data and output files from these eight computer runs.

The resulting site specific relationship between Ra-226 and calculated Rn-222 is presented in Figure A.7-1 and may be expressed as:

$$\textit{Indoor level of } {}^{222}Rn = (0.1889)\ {}^{226}Ra + 0.0578 \qquad \text{(A.7-1)}$$

Indoor Rn-222 levels in a hypothetical dwelling were estimated by substituting representative concentrations of Ra-226 in each of the Operable Unit 5 subareas into the Ra-226 term in this equation and solving for Rn-222 (Table A.7-1). The isotope Rn-220 was not considered a significant contributor to indoor air due to its 55-second half-life and the relatively low concentration of its thorium (Th)-232 precursor in Operable Unit 5 soil (<36 pCi/g).

Once the Rn-222 levels were calculated, lifetime intakes of Rn-222 by the reasonable maximum exposure (RME) and the central tendency (CT) farmers via the inhalation pathway were calculated using Equation A.3-11 in Section A.3.4.2.3 and the parameter values for indoor air exposures presented in Table A.3-20. The resulting intakes of Rn-222 are presented in Table A.7-1.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) risks from these lifetime intakes of Rn-222 were calculated by multiplying each intake by the Health Effects Assessment Summary Tables (HEAST) cancer slope factor (CSF) for Rn-222 and its short-lived decay products. The results of these calculations are presented in the last two columns of Table A.7-1. These results are included in the summary risks presented in Section A.6 of this appendix.

TABLE A.VIII-1

ESTIMATED INDOOR RADON (Rn)-222 LEVELS, INTAKES AND RISKS

Postulated Location of Dwelling	Soil Ra-226 (pCi/g)	Indoor Rn-222[b] (pCi/L)	Lifetime Intake RME[c] (pCi)	Lifetime Intake CT[d] (pCi)	ILCR[e] RME[f]	ILCR[e] CT[f]
Former Production Area						
Area 1	2.6	0.55	2.0 E+5	2.0 E+4	1.6 E-6	1.6 E-7
Area 2	1.68	0.38	1.4 E+5	1.4 E+4	1.1 E-6	1.1 E-7
Area 3	4.8	0.96	3.5 E+5	3.6 E+4	2.7 E-6	2.8 E-7
Area 4	3.4	0.70	2.6 E+5	2.6 E+4	2.0 E-6	2.0 E-7
Outside the Former Production Area						
Area 5	1.3	0.30	1.1 E+5	1.1 E+4	8.6 E-7	8.7 E-8
Area 6	18.5	3.55	1.3 E+6	1.3 E+5	1.0 E-5	1.0 E-6
Area 7	1.2	0.28	1.0 E+5	1.1 E+4	8.1 E-7	8.1 E-8
Area 8	0.97	0.24	8.9 E+4	8.9 E+3	6.8 E-7	6.9 E-8
Area 9	34	6.48	2.4 E+6	2.4 E+5	1.8 E-5	1.9 E-6
Southern Area						
RIO	1.4	0.32	1.2 E+5	1.2 E+4	9.1 E-7	9.2 E-8
RIDA	1.21	0.29	1.1 E+5	1.1 E+4	8.1 E-7	8.2 E-8
RIOB	1.2	0.28	1.0 E+5	1.1 E+4	8.1 E-7	8.1 E-8
RIOC	0.861	0.22	8.1 E+4	8.2 E+3	6.2 E-7	6.3 E-8

[a]Calculated using Equation A.7-1 in Attachment A.7 of this Appendix.
[b]Calculated using Equation A.3-11 in Section A.3.4.2.3, where IR = 15 m^3/d, EF = 350 d/y, and ET = 70 y.
[c]Calculated using Equation A.3-11 in Section A.3.4.2.3, where IR = 15 m^3/d, EF = 275 d/y, and ET = 9 y.
[d]Product of the intake and the CSF for Ra-222 + D (7.7e-12).

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EXHIBIT A.VIII-1
RAETRAD INPUT AND OUTPUT

```
SCENARIO TITLE: Radon in a home placed over a 2 ft soil layer containing 2 pCi/g Ra-226.
  RAETRAD v3.1
     FILE NAME: 2_______                                          RAdon Emanation and TRAnsport
into Dwellings
      RUN DATE:  2/15/1994 @ 15:55                                developed by Rogers & Associates
Engineering Corporation

 ==========================================================:  INPUT  PARAMETERS
:==========================================================

 HOUSE:
      Dimensions     :  28.4  x  54.3  ft.      Equiv. ellipse radius :      16  ft.     Outdoor Pressure
:    .00  Pa
      Area           :  1542  sq. ft.           Aspect ratio          :   1.912          Indoor Rn Bnd.
:   2.00  pCi/L
      Fill thickness :     0  units (  .0ft.)   Circumference         :   153.4  ft.     Outdoor Rn Bnd.
:    .40  pCi/L
      Footing depth  :     5  units ( 4.0ft.)   Indoor pressure       :    -2.4  Pa.     Radial Mesh Units
:   1.00  ft.

 FLOOR OPENINGS:
          Crack or                                Loc. Frm   Local     Local   Radial    Arc
        Penetration          Number of            Permtr   Pressure  Rn Bndry  Width    Length    Porosity    Perm.
Diff.
           Type              Penetrations          ft        Pa       pCi/L     cm       cm                    cm2
 cm2/s
      ------------------------ ------------ -------- -------- -------- ------ -------- -------- --------
--------
      Elliptical Crack                            .000     -2.40     2.00   1.00   4681.8     .600  1.00E-04
6.00E-02

 FOUNDATION & SOILS:
      Lyr  Thickness  Vrt.  Ra226  Dens.  Eman.  Tot.  Sat'n  P.Diam   Diff.Rad  Diff.Ver  Perm.Rad  Perm.Ver
Kads
      No.    ft      Div.  pCi/g  g/cm3  frac.  Poros  frac.   cm       cm2/s     cm2/s      cm2       cm2      cc/g
 Material
      ---  --------- ----  -----  -----  -----  -----  -----  --------  --------  --------  --------  --------
------  --------
      FLR      .333    1    1.0  2.100   .100   .222   .769  .000290  6.29E-04  6.29E-04  1.23E-12  1.23E-12
.000098  Concl
       1       .050    1    2.0  1.500   .200   .444   .805  .011400  1.23E-03  1.23E-03  2.82E-10  2.82E-10
.000094  SiLom
       2      1.950    2    2.0  1.500   .200   .444   .805  .011400  1.23E-03  1.23E-03  2.82E-10  2.82E-10
.000094  SiLom
       3      8.000    8    1.2  1.500   .200   .444   .805  .011400  1.23E-03  1.23E-03  2.82E-10  2.82E-10
.000094  SiLom
      FTG     4.000    5    1.0  2.100   .100   .222   .769  .000290  6.29E-04  6.29E-04  1.23E-12  1.23E-12
.000098  Concl

 ==========================================================:  ANALYSIS  RESULTS
:==========================================================

RADON ENTRY PROFILE:

                                                  Radial    Air      Eff.     Radon
                                                  Positn   Entry    Radon    Entry
                                                    ft      Rate     Flux     Rate
                                                    ft      cfm     pCi/m2s   pCi/s
        -House Center-                            ------  ---------  --------  --------
        |          O                              1.00   8.51E-08  1.24E-01  6.91E-02
        |          O                              2.00   2.55E-07  1.24E-01  2.07E-01
```

CANOO

```
|        O                                  3.00     4.25E-07     1.24E-01     3.45E-01
|        O                                  4.00     5.94E-07     1.24E-01     4.84E-01
|        O                                  5.00     7.62E-07     1.24E-01     6.22E-01
|        O                                  6.00     9.28E-07     1.24E-01     7.60E-01
|        O                                  7.00     1.09E-06     1.24E-01     8.98E-01
|        O                                  8.00     1.25E-06     1.24E-01     1.04E+00
|        O                                  9.00     1.39E-06     1.24E-01     1.17E+00
|        O                                 10.00     1.52E-06     1.24E-01     1.31E+00
|        O                                 11.00     1.63E-06     1.24E-01     1.45E+00
|        O                                 12.00     1.70E-06     1.24E-01     1.59E+00
|        O                                 13.00     1.70E-06     1.23E-01     1.72E+00
|        O                                 14.00     1.57E-06     1.22E-01     1.84E+00
|        O                                 15.00     1.18E-06     1.14E-01     1.84E+00
|         Elliptical crack                 16.00     1.35E-04     2.79E-01     4.82E+00
|-----O=====                               17.00     5.18E-06     5.24E-02     9.66E-01
          Y                        INDOOR TOTAL      1.56E-04     1.48E-01     2.11E+01
          Y
          Y                                18.00    -2.49E-05     3.56E-02     6.95E+00
          Y                                19.00    -1.80E-05     3.34E-02     6.90E+00
          Y                                20.00    -1.64E-05     3.34E-02     7.27E+00
          Y                                21.00    -1.49E-05     3.34E-02     7.65E+00
          Y                                22.00    -1.33E-05     3.34E-02     8.03E+00
          Y                                23.00    -1.18E-05     3.35E-02     8.40E+00
          Y                                24.00    -1.05E-05     3.35E-02     8.78E+00
          Y                                25.00    -9.31E-06     3.35E-02     9.15E+00
          Y                                26.00    -8.25E-06     3.35E-02     9.53E+00
          Y                                27.00    -7.32E-06     3.35E-02     9.90E+00
          Y                                28.00    -6.50E-06     3.35E-02     1.03E+01
          Y                                29.00    -5.79E-06     3.35E-02     1.07E+01
          Y                                30.00    -5.16E-06     3.35E-02     1.10E+01
          Y                                31.00    -4.62E-06     3.35E-02     1.14E+01
          Y                                32.00    -4.16E-06     3.35E-02     1.18E+01
          Y                                33.00    -3.77E-06     3.35E-02     1.21E+01
          Y                                34.00    -3.44E-06     3.35E-02     1.25E+01
          Y                                35.00    -3.17E-06     3.35E-02     1.29E+01
          Y                                36.00    -2.96E-06     3.35E-02     1.33E+01
          Y                                37.00    -2.80E-06     3.35E-02     1.36E+01
          Y                                38.00    -2.70E-06     3.35E-02     1.40E+01
          Y                                39.00    -2.65E-06     3.35E-02     1.44E+01
          Y                                40.00    -2.66E-06     3.35E-02     1.48E+01
```

INDOOR RADON : .436 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

SCENARIO TITLE: Radon in a home placed over a 2 ft layer of soil containing 3 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 3_____ RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 15:42 developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	: 28.4 x 54.3 ft.	Equiv. ellipse radius	: 16 ft.	Outdoor Pressure	: .00 Pa
Area	: 1542 sq. ft.	Aspect ratio	: 1.912	Indoor Rn Bnd.	: 2.00 pCi/L
Fill thickness	: 0 units (.0ft.)	Circumference	: 153.4 ft.	Outdoor Rn Bnd.	: .40 pCi/L
Footing depth	: 5 units (4.0ft.)	Indoor pressure	: -2.4 Pa.	Radial Mesh Units	: 1.00 ft.

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	3.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	3.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

-House Center-
| O
| O
| O
| O

Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
1.00	8.51E-08	1.80E-01	1.00E-01
2.00	2.55E-07	1.80E-01	3.01E-01
3.00	4.25E-07	1.80E-01	5.02E-01
4.00	5.94E-07	1.80E-01	7.02E-01

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|        O                                  5.00      7.62E-07     1.80E-01     9.03E-01
|        O                                  6.00      9.28E-07     1.80E-01     1.10E+00
|        O                                  7.00      1.09E-06     1.80E-01     1.30E+00
|        O                                  8.00      1.25E-06     1.80E-01     1.50E+00
|        O                                  9.00      1.39E-06     1.80E-01     1.71E+00
|        O                                 10.00      1.52E-06     1.80E-01     1.91E+00
|        O                                 11.00      1.63E-06     1.80E-01     2.11E+00
|        O                                 12.00      1.70E-06     1.80E-01     2.31E+00
|        O                                 13.00      1.70E-06     1.79E-01     2.50E+00
|        O                                 14.00      1.57E-06     1.77E-01     2.66E+00
|        O                                 15.00      1.18E-06     1.65E-01     2.67E+00
|         Elliptical crack                 16.00      1.35E-04     4.00E-01     6.93E+00
|-----O=====                               17.00      5.18E-06     5.95E-02     1.09E+00
          Y                        INDOOR TOTAL       1.56E-04     2.11E-01     3.03E+01
          Y
          Y                                 18.00     -2.49E-05     5.11E-02     9.99E+00
          Y                                 19.00     -1.80E-05     4.95E-02     1.02E+01
          Y                                 20.00     -1.64E-05     4.96E-02     1.08E+01
          Y                                 21.00     -1.49E-05     4.97E-02     1.14E+01
          Y                                 22.00     -1.33E-05     4.97E-02     1.19E+01
          Y                                 23.00     -1.18E-05     4.97E-02     1.25E+01
          Y                                 24.00     -1.05E-05     4.97E-02     1.30E+01
          Y                                 25.00     -9.31E-06     4.98E-02     1.36E+01
          Y                                 26.00     -8.25E-06     4.98E-02     1.42E+01
          Y                                 27.00     -7.32E-06     4.98E-02     1.47E+01
          Y                                 28.00     -6.50E-06     4.98E-02     1.53E+01
          Y                                 29.00     -5.79E-06     4.98E-02     1.58E+01
          Y                                 30.00     -5.16E-06     4.98E-02     1.64E+01
          Y                                 31.00     -4.62E-06     4.98E-02     1.69E+01
          Y                                 32.00     -4.16E-06     4.98E-02     1.75E+01
          Y                                 33.00     -3.77E-06     4.98E-02     1.81E+01
          Y                                 34.00     -3.44E-06     4.98E-02     1.86E+01
          Y                                 35.00     -3.17E-06     4.98E-02     1.92E+01
          Y                                 36.00     -2.96E-06     4.98E-02     1.97E+01
          Y                                 37.00     -2.80E-06     4.98E-02     2.03E+01
          Y                                 38.00     -2.70E-06     4.98E-02     2.08E+01
          Y                                 39.00     -2.65E-06     4.98E-02     2.14E+01
          Y                                 40.00     -2.66E-06     4.98E-02     2.19E+01
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INDOOR RADON : .624 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 10 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 10_____ RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16: 4 developed by Rogers & Associates Engineering Corporation

==========: INPUT PARAMETERS
:==========

HOUSE:

Dimensions	: 28.4 x 54.3 ft.	Equiv. ellipse radius	: 16 ft.
Area	: 1542 sq. ft.	Aspect ratio	: 1.912
Fill thickness	: 0 units (.0ft.)	Circumference	: 153.4 ft.
Footing depth	: 5 units (4.0ft.)	Indoor pressure	: -2.4 Pa.

Outdoor Pressure : .00 Pa
Indoor Rn Bnd. : 2.00 pCi/L
Outdoor Rn Bnd. : .40 pCi/L
Radial Mesh Units : 1.00 ft.

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	10.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	10.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

==========: ANALYSIS RESULTS
:==========

RADON ENTRY PROFILE:

	Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
-House Center- 0	1.00	8.51E-08	5.72E-01	3.19E-01

5697

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|        O                                  2.00     2.55E-07     5.72E-01     9.57E-01
|        O                                  3.00     4.25E-07     5.72E-01     1.59E+00
|        O                                  4.00     5.94E-07     5.72E-01     2.23E+00
|        O                                  5.00     7.62E-07     5.72E-01     2.87E+00
|        O                                  6.00     9.28E-07     5.72E-01     3.51E+00
|        O                                  7.00     1.09E-06     5.72E-01     4.15E+00
|        O                                  8.00     1.25E-06     5.72E-01     4.78E+00
|        O                                  9.00     1.39E-06     5.71E-01     5.42E+00
|        O                                 10.00     1.52E-06     5.71E-01     6.06E+00
|        O                                 11.00     1.63E-06     5.71E-01     6.70E+00
|        O                                 12.00     1.70E-06     5.71E-01     7.33E+00
|        O                                 13.00     1.70E-06     5.69E-01     7.94E+00
|        O                                 14.00     1.57E-06     5.62E-01     8.46E+00
|        O                                 15.00     1.18E-06     5.23E-01     8.46E+00
|         Elliptical crack                 16.00     1.35E-04     1.25E+00     2.17E+01
|-----O=====                               17.00     5.18E-06     1.09E-01     2.00E+00
          Y                        INDOOR TOTAL      1.56E-04     6.59E-01     9.44E+01
          Y
          Y                                 18.00    -2.49E-05     1.60E-01     3.12E+01
          Y                                 19.00    -1.80E-05     1.62E-01     3.34E+01
          Y                                 20.00    -1.64E-05     1.63E-01     3.55E+01
          Y                                 21.00    -1.49E-05     1.64E-01     3.74E+01
          Y                                 22.00    -1.33E-05     1.64E-01     3.93E+01
          Y                                 23.00    -1.18E-05     1.64E-01     4.11E+01
          Y                                 24.00    -1.05E-05     1.64E-01     4.29E+01
          Y                                 25.00    -9.31E-06     1.64E-01     4.48E+01
          Y                                 26.00    -8.25E-06     1.64E-01     4.66E+01
          Y                                 27.00    -7.32E-06     1.64E-01     4.84E+01
          Y                                 28.00    -6.50E-06     1.64E-01     5.03E+01
          Y                                 29.00    -5.79E-06     1.64E-01     5.21E+01
          Y                                 30.00    -5.16E-06     1.64E-01     5.39E+01
          Y                                 31.00    -4.62E-06     1.64E-01     5.58E+01
          Y                                 32.00    -4.16E-06     1.64E-01     5.76E+01
          Y                                 33.00    -3.77E-06     1.64E-01     5.94E+01
          Y                                 34.00    -3.44E-06     1.64E-01     6.13E+01
          Y                                 35.00    -3.17E-06     1.64E-01     6.31E+01
          Y                                 36.00    -2.96E-06     1.64E-01     6.49E+01
          Y                                 37.00    -2.80E-06     1.64E-01     6.67E+01
          Y                                 38.00    -2.70E-06     1.64E-01     6.86E+01
          Y                                 39.00    -2.65E-06     1.64E-01     7.04E+01
          Y                                 40.00    -2.66E-06     1.64E-01     7.22E+01
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INDOOR RADON : 1.947 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 10.00 seconds

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 30 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 30_____ RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16:16 developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	28.4 x 54.3 ft.	Equiv. ellipse radius	16 ft.
Outdoor Pressure	.00 Pa		
Area	1542 sq. ft.	Aspect ratio	1.912
Indoor Rn Bnd.	2.00 pCi/L		
Fill thickness	0 units (.0ft.)	Circumference	153.4 ft.
Outdoor Rn Bnd.	.40 pCi/L		
Footing depth	5 units (4.0ft.)	Indoor pressure	-2.4 Pa.
Radial Mesh Units	1.00 ft.		

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	30.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	30.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

	Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
-House Center-				
O	1.00	8.51E-08	1.69E+00	9.43E-01
O	2.00	2.55E-07	1.69E+00	2.83E+00
O	3.00	4.25E-07	1.69E+00	4.72E+00

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|        O                                  4.00     5.94E-07     1.69E+00     6.60E+00
|        O                                  5.00     7.62E-07     1.69E+00     8.49E+00
|        O                                  6.00     9.28E-07     1.69E+00     1.04E+01
|        O                                  7.00     1.09E-06     1.69E+00     1.23E+01
|        O                                  8.00     1.25E-06     1.69E+00     1.42E+01
|        O                                  9.00     1.39E-06     1.69E+00     1.60E+01
|        O                                 10.00     1.52E-06     1.69E+00     1.79E+01
|        O                                 11.00     1.63E-06     1.69E+00     1.98E+01
|        O                                 12.00     1.70E-06     1.69E+00     2.17E+01
|        O                                 13.00     1.70E-06     1.68E+00     2.35E+01
|        O                                 14.00     1.57E-06     1.66E+00     2.50E+01
|        O                                 15.00     1.18E-06     1.55E+00     2.50E+01
|         Elliptical crack                 16.00     1.35E-04     3.69E+00     6.38E+01
|-----O=====                               17.00     5.18E-06     2.49E-01     4.59E+00
          Y                       INDOOR TOTAL       1.56E-04     1.94E+00     2.78E+02
          Y
          Y                                18.00    -2.49E-05     4.71E-01     9.20E+01
          Y                                19.00    -1.80E-05     4.83E-01     9.97E+01
          Y                                20.00    -1.64E-05     4.87E-01     1.06E+02
          Y                                21.00    -1.49E-05     4.89E-01     1.12E+02
          Y                                22.00    -1.33E-05     4.89E-01     1.17E+02
          Y                                23.00    -1.18E-05     4.89E-01     1.23E+02
          Y                                24.00    -1.05E-05     4.89E-01     1.28E+02
          Y                                25.00    -9.31E-06     4.89E-01     1.34E+02
          Y                                26.00    -8.25E-06     4.89E-01     1.39E+02
          Y                                27.00    -7.32E-06     4.90E-01     1.45E+02
          Y                                28.00    -6.50E-06     4.90E-01     1.50E+02
          Y                                29.00    -5.79E-06     4.90E-01     1.56E+02
          Y                                30.00    -5.16E-06     4.90E-01     1.61E+02
          Y                                31.00    -4.62E-06     4.90E-01     1.67E+02
          Y                                32.00    -4.16E-06     4.90E-01     1.72E+02
          Y                                33.00    -3.77E-06     4.90E-01     1.78E+02
          Y                                34.00    -3.44E-06     4.90E-01     1.83E+02
          Y                                35.00    -3.17E-06     4.90E-01     1.89E+02
          Y                                36.00    -2.96E-06     4.90E-01     1.94E+02
          Y                                37.00    -2.80E-06     4.90E-01     1.99E+02
          Y                                38.00    -2.70E-06     4.90E-01     2.05E+02
          Y                                39.00    -2.65E-06     4.90E-01     2.10E+02
          Y                                40.00    -2.66E-06     4.90E-01     2.16E+02
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INDOOR RADON : 5.724 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 100 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 100_____ RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16:16 developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	: 28.4 x 54.3 ft.	Equiv. ellipse radius	: 16 ft.
Area	: 1542 sq. ft.	Aspect ratio	: 1.912
Fill thickness	: 0 units (.0ft.)	Circumference	: 153.4 ft.
Footing depth	: 5 units (4.0ft.)	Indoor pressure	: -2.4 Pa.

Outdoor Pressure : .00 Pa
Indoor Rn Bnd. : 2.00 pCi/L
Outdoor Rn Bnd. : .40 pCi/L
Radial Mesh Units : 1.00 ft.

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	100.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	100.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

-House Center-	Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
O	1.00	8.51E-08	5.61E+00	3.13E+00
O	2.00	2.55E-07	5.61E+00	9.39E+00
O	3.00	4.25E-07	5.61E+00	1.56E+01

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|        O                                  4.00      5.94E-07     5.61E+00     2.19E+01
|        O                                  5.00      7.62E-07     5.61E+00     2.82E+01
|        O                                  6.00      9.28E-07     5.61E+00     3.44E+01
|        O                                  7.00      1.09E-06     5.61E+00     4.07E+01
|        O                                  8.00      1.25E-06     5.61E+00     4.69E+01
|        O                                  9.00      1.39E-06     5.61E+00     5.32E+01
|        O                                 10.00      1.52E-06     5.61E+00     5.95E+01
|        O                                 11.00      1.63E-06     5.61E+00     6.57E+01
|        O                                 12.00      1.70E-06     5.60E+00     7.19E+01
|        O                                 13.00      1.70E-06     5.59E+00     7.79E+01
|        O                                 14.00      1.57E-06     5.51E+00     8.30E+01
|        O                                 15.00      1.18E-06     5.13E+00     8.29E+01
|         Elliptical crack                 16.00      1.35E-04     1.22E+01     2.11E+02
|-----O=====                               17.00      5.18E-06     7.41E-01     1.36E+01
          Y                        INDOOR TOTAL       1.56E-04     6.42E+00     9.19E+02
          Y
          Y                                 18.00     -2.49E-05     1.56E+00     3.04E+02
          Y                                 19.00     -1.80E-05     1.61E+00     3.32E+02
          Y                                 20.00     -1.64E-05     1.62E+00     3.53E+02
          Y                                 21.00     -1.49E-05     1.63E+00     3.72E+02
          Y                                 22.00     -1.33E-05     1.63E+00     3.91E+02
          Y                                 23.00     -1.18E-05     1.63E+00     4.09E+02
          Y                                 24.00     -1.05E-05     1.63E+00     4.27E+02
          Y                                 25.00     -9.31E-06     1.63E+00     4.45E+02
          Y                                 26.00     -8.25E-06     1.63E+00     4.64E+02
          Y                                 27.00     -7.32E-06     1.63E+00     4.82E+02
          Y                                 28.00     -6.50E-06     1.63E+00     5.00E+02
          Y                                 29.00     -5.79E-06     1.63E+00     5.18E+02
          Y                                 30.00     -5.16E-06     1.63E+00     5.37E+02
          Y                                 31.00     -4.62E-06     1.63E+00     5.55E+02
          Y                                 32.00     -4.16E-06     1.63E+00     5.73E+02
          Y                                 33.00     -3.77E-06     1.63E+00     5.91E+02
          Y                                 34.00     -3.44E-06     1.63E+00     6.09E+02
          Y                                 35.00     -3.17E-06     1.63E+00     6.28E+02
          Y                                 36.00     -2.96E-06     1.63E+00     6.46E+02
          Y                                 37.00     -2.80E-06     1.63E+00     6.64E+02
          Y                                 38.00     -2.70E-06     1.63E+00     6.82E+02
          Y                                 39.00     -2.65E-06     1.63E+00     7.01E+02
          Y                                 40.00     -2.66E-06     1.63E+00     7.19E+02
```

INDOOR RADON : 18.945 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

001473

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 300 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 300_____
RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16:16
developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	: 28.4 x 54.3 ft.	Equiv. ellipse radius	: 16 ft.
Outdoor Pressure	: .00 Pa		
Area	: 1542 sq. ft.	Aspect ratio	: 1.912
Indoor Rn Bnd.	: 2.00 pCi/L		
Fill thickness	: 0 units (.0ft.)	Circumference	: 153.4 ft.
Outdoor Rn Bnd.	: .40 pCi/L		
Footing depth	: 5 units (4.0ft.)	Indoor pressure	: -2.4 Pa.
Radial Mesh Units	: 1.00 ft.		

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	300.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	300.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

-House Center-

Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
1.00	8.51E-08	1.68E+01	9.38E+00
2.00	2.55E-07	1.68E+01	2.81E+01
3.00	4.25E-07	1.68E+01	4.69E+01

5697

```
|        O                                  4.00      5.94E-07     1.68E+01     6.56E+01
|        O                                  5.00      7.62E-07     1.68E+01     8.44E+01
|        O                                  6.00      9.28E-07     1.68E+01     1.03E+02
|        O                                  7.00      1.09E-06     1.68E+01     1.22E+02
|        O                                  8.00      1.25E-06     1.68E+01     1.41E+02
|        O                                  9.00      1.39E-06     1.68E+01     1.59E+02
|        O                                 10.00      1.52E-06     1.68E+01     1.78E+02
|        O                                 11.00      1.63E-06     1.68E+01     1.97E+02
|        O                                 12.00      1.70E-06     1.68E+01     2.15E+02
|        O                                 13.00      1.70E-06     1.67E+01     2.33E+02
|        O                                 14.00      1.57E-06     1.65E+01     2.49E+02
|        O                                 15.00      1.18E-06     1.54E+01     2.48E+02
|         Elliptical crack                 16.00      1.35E-04     3.65E+01     6.32E+02
|-----O=====                               17.00      5.18E-06     2.15E+00     3.95E+01
          Y                       INDOOR TOTAL        1.56E-04     1.92E+01     2.75E+03
          Y
          Y                                18.00     -2.49E-05     4.67E+00     9.12E+02
          Y                                19.00     -1.80E-05     4.82E+00     9.95E+02
          Y                                20.00     -1.64E-05     4.87E+00     1.06E+03
          Y                                21.00     -1.49E-05     4.88E+00     1.12E+03
          Y                                22.00     -1.33E-05     4.88E+00     1.17E+03
          Y                                23.00     -1.18E-05     4.88E+00     1.23E+03
          Y                                24.00     -1.05E-05     4.89E+00     1.28E+03
          Y                                25.00     -9.31E-06     4.89E+00     1.34E+03
          Y                                26.00     -8.25E-06     4.89E+00     1.39E+03
          Y                                27.00     -7.32E-06     4.89E+00     1.45E+03
          Y                                28.00     -6.50E-06     4.89E+00     1.50E+03
          Y                                29.00     -5.79E-06     4.89E+00     1.55E+03
          Y                                30.00     -5.16E-06     4.89E+00     1.61E+03
          Y                                31.00     -4.62E-06     4.89E+00     1.66E+03
          Y                                32.00     -4.16E-06     4.89E+00     1.72E+03
          Y                                33.00     -3.77E-06     4.89E+00     1.77E+03
          Y                                34.00     -3.44E-06     4.89E+00     1.83E+03
          Y                                35.00     -3.17E-06     4.89E+00     1.88E+03
          Y                                36.00     -2.96E-06     4.89E+00     1.94E+03
          Y                                37.00     -2.80E-06     4.89E+00     1.99E+03
          Y                                38.00     -2.70E-06     4.89E+00     2.05E+03
          Y                                39.00     -2.65E-06     4.89E+00     2.10E+03
          Y                                40.00     -2.66E-06     4.89E+00     2.16E+03
```

INDOOR RADON : 56.720 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 1000 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 1000____
RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16:16
developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	28.4 x 54.3 ft.	Equiv. ellipse radius	16 ft.
Outdoor Pressure	.00 Pa		
Area	1542 sq. ft.	Aspect ratio	1.912
Indoor Rn Bnd.	2.00 pCi/L		
Fill thickness	0 units (.0ft.)	Circumference	153.4 ft.
Outdoor Rn Bnd.	.40 pCi/L		
Footing depth	5 units (4.0ft.)	Indoor pressure	-2.4 Pa.
Radial Mesh Units	1.00 ft.		

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	1000.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	1000.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

	Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
-House Center-				
O	1.00	8.51E-08	5.60E+01	3.12E+01
O	2.00	2.55E-07	5.60E+01	9.37E+01
O	3.00	4.25E-07	5.60E+01	1.56E+02
O	4.00	5.94E-07	5.60E+01	2.19E+02

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|        O                                  5.00      7.62E-07     5.60E+01     2.81E+02
|        O                                  6.00      9.28E-07     5.60E+01     3.44E+02
|        O                                  7.00      1.09E-06     5.60E+01     4.06E+02
|        O                                  8.00      1.25E-06     5.60E+01     4.69E+02
|        O                                  9.00      1.39E-06     5.60E+01     5.31E+02
|        O                                 10.00      1.52E-06     5.60E+01     5.93E+02
|        O                                 11.00      1.63E-06     5.60E+01     6.56E+02
|        O                                 12.00      1.70E-06     5.59E+01     7.18E+02
|        O                                 13.00      1.70E-06     5.57E+01     7.78E+02
|        O                                 14.00      1.57E-06     5.50E+01     8.29E+02
|        O                                 15.00      1.18E-06     5.12E+01     8.28E+02
|         Elliptical crack                 16.00      1.35E-04     1.22E+02     2.11E+03
|-----O=====                               17.00      5.18E-06     7.06E+00     1.30E+02
            Y                       INDOOR TOTAL      1.56E-04     6.40E+01     9.17E+03
            Y
            Y                                 18.00     -2.49E-05     1.55E+01     3.04E+03
            Y                                 19.00     -1.80E-05     1.61E+01     3.32E+03
            Y                                 20.00     -1.64E-05     1.62E+01     3.53E+03
            Y                                 21.00     -1.49E-05     1.63E+01     3.72E+03
            Y                                 22.00     -1.33E-05     1.63E+01     3.90E+03
            Y                                 23.00     -1.18E-05     1.63E+01     4.09E+03
            Y                                 24.00     -1.05E-05     1.63E+01     4.27E+03
            Y                                 25.00     -9.31E-06     1.63E+01     4.45E+03
            Y                                 26.00     -8.25E-06     1.63E+01     4.63E+03
            Y                                 27.00     -7.32E-06     1.63E+01     4.82E+03
            Y                                 28.00     -6.50E-06     1.63E+01     5.00E+03
            Y                                 29.00     -5.79E-06     1.63E+01     5.18E+03
            Y                                 30.00     -5.16E-06     1.63E+01     5.36E+03
            Y                                 31.00     -4.62E-06     1.63E+01     5.55E+03
            Y                                 32.00     -4.16E-06     1.63E+01     5.73E+03
            Y                                 33.00     -3.77E-06     1.63E+01     5.91E+03
            Y                                 34.00     -3.44E-06     1.63E+01     6.09E+03
            Y                                 35.00     -3.17E-06     1.63E+01     6.27E+03
            Y                                 36.00     -2.96E-06     1.63E+01     6.46E+03
            Y                                 37.00     -2.80E-06     1.63E+01     6.64E+03
            Y                                 38.00     -2.70E-06     1.63E+01     6.82E+03
            Y                                 39.00     -2.65E-06     1.63E+01     7.00E+03
            Y                                 40.00     -2.66E-06     1.63E+01     7.18E+03
```

INDOOR RADON : 188.932 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 12.00 seconds

SCENARIO TITLE: Rn in a home placed over a 2 ft soil layer containing 3000 pCi/g Ra-226.
RAETRAD v3.1
FILE NAME: 3000____ RAdon Emanation and TRAnsport into Dwellings
RUN DATE: 2/15/1994 @ 16:16 developed by Rogers & Associates Engineering Corporation

INPUT PARAMETERS

HOUSE:

Dimensions	: 28.4 x 54.3 ft.	Equiv. ellipse radius	: 16 ft.	Outdoor Pressure	: .00 Pa
Area	: 1542 sq. ft.	Aspect ratio	: 1.912	Indoor Rn Bnd.	: 2.00 pCi/L
Fill thickness	: 0 units (.0ft.)	Circumference	: 153.4 ft.	Outdoor Rn Bnd.	: .40 pCi/L
Footing depth	: 5 units (4.0ft.)	Indoor pressure	: -2.4 Pa.	Radial Mesh Units	: 1.00 ft.

FLOOR OPENINGS:

Crack or Penetration Type	Number of Penetrations	Loc. Frm Permtr ft	Local Pressure Pa	Local Rn Bndry pCi/L	Radial Width cm	Arc Length cm	Porosity	Perm. cm2	Diff. cm2/s
Elliptical Crack		.000	-2.40	2.00	1.00	4681.8	.600	1.00E-04	6.00E-02

FOUNDATION & SOILS:

Lyr No.	Thickness ft	Vrt. Div.	Ra226 pCi/g	Dens. g/cm3	Eman. frac.	Tot. Poros	Sat'n frac.	P.Diam cm	Diff.Rad cm2/s	Diff.Ver cm2/s	Perm.Rad cm2	Perm.Ver cm2	Kads cc/g	Material
FLR	.333	1	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl
1	.050	1	3000.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
2	1.950	2	3000.0	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
3	8.000	8	1.2	1.500	.200	.444	.805	.011400	1.23E-03	1.23E-03	2.82E-10	2.82E-10	.000094	SiLom
FTG	4.000	5	1.0	2.100	.100	.222	.769	.000290	6.29E-04	6.29E-04	1.23E-12	1.23E-12	.000098	Concl

ANALYSIS RESULTS

RADON ENTRY PROFILE:

-House Center-	Radial Positn ft	Air Entry Rate cfm	Eff. Radon Flux pCi/m2s	Radon Entry Rate pCi/s
O	1.00	8.51E-08	1.68E+02	9.37E+01
O	2.00	2.55E-07	1.68E+02	2.81E+02
O	3.00	4.25E-07	1.68E+02	4.68E+02

```
|        O                                  4.00      5.94E-07     1.68E+02     6.56E+02
|        O                                  5.00      7.62E-07     1.68E+02     8.43E+02
|        O                                  6.00      9.28E-07     1.68E+02     1.03E+03
|        O                                  7.00      1.09E-06     1.68E+02     1.22E+03
|        O                                  8.00      1.25E-06     1.68E+02     1.41E+03
|        O                                  9.00      1.39E-06     1.68E+02     1.59E+03
|        O                                 10.00      1.52E-06     1.68E+02     1.78E+03
|        O                                 11.00      1.63E-06     1.68E+02     1.97E+03
|        O                                 12.00      1.70E-06     1.68E+02     2.15E+03
|        O                                 13.00      1.70E-06     1.67E+02     2.33E+03
|        O                                 14.00      1.57E-06     1.65E+02     2.49E+03
|        O                                 15.00      1.18E-06     1.53E+02     2.48E+03
|         Elliptical crack                 16.00      1.35E-04     3.65E+02     6.32E+03
|-----O=====                               17.00      5.18E-06     2.11E+01     3.89E+02
          Y                        INDOOR TOTAL       1.56E-04     1.92E+02     2.75E+04
          Y
          Y                                 18.00     -2.49E-05     4.66E+01     9.11E+03
          Y                                 19.00     -1.80E-05     4.82E+01     9.95E+03
          Y                                 20.00     -1.64E-05     4.87E+01     1.06E+04
          Y                                 21.00     -1.49E-05     4.88E+01     1.12E+04
          Y                                 22.00     -1.33E-05     4.88E+01     1.17E+04
          Y                                 23.00     -1.18E-05     4.88E+01     1.23E+04
          Y                                 24.00     -1.05E-05     4.88E+01     1.28E+04
          Y                                 25.00     -9.31E-06     4.89E+01     1.34E+04
          Y                                 26.00     -8.25E-06     4.89E+01     1.39E+04
          Y                                 27.00     -7.32E-06     4.89E+01     1.45E+04
          Y                                 28.00     -6.50E-06     4.89E+01     1.50E+04
          Y                                 29.00     -5.79E-06     4.89E+01     1.55E+04
          Y                                 30.00     -5.16E-06     4.89E+01     1.61E+04
          Y                                 31.00     -4.62E-06     4.89E+01     1.66E+04
          Y                                 32.00     -4.16E-06     4.89E+01     1.72E+04
          Y                                 33.00     -3.77E-06     4.89E+01     1.77E+04
          Y                                 34.00     -3.44E-06     4.89E+01     1.83E+04
          Y                                 35.00     -3.17E-06     4.89E+01     1.88E+04
          Y                                 36.00     -2.96E-06     4.89E+01     1.94E+04
          Y                                 37.00     -2.80E-06     4.89E+01     1.99E+04
          Y                                 38.00     -2.70E-06     4.89E+01     2.05E+04
          Y                                 39.00     -2.65E-06     4.89E+01     2.10E+04
          Y                                 40.00     -2.66E-06     4.89E+01     2.15E+04
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INDOOR RADON : 566.681 pCi/L (assuming .5000 ach & 8.00 ft Height)

CPU Calc. Time: 11.00 seconds

DRAFT

FIGURE A.VIII-1. PLOT OF SOIL RA-226 CONCENTRATIONS VS. INDOOR RN-222 LEVELS

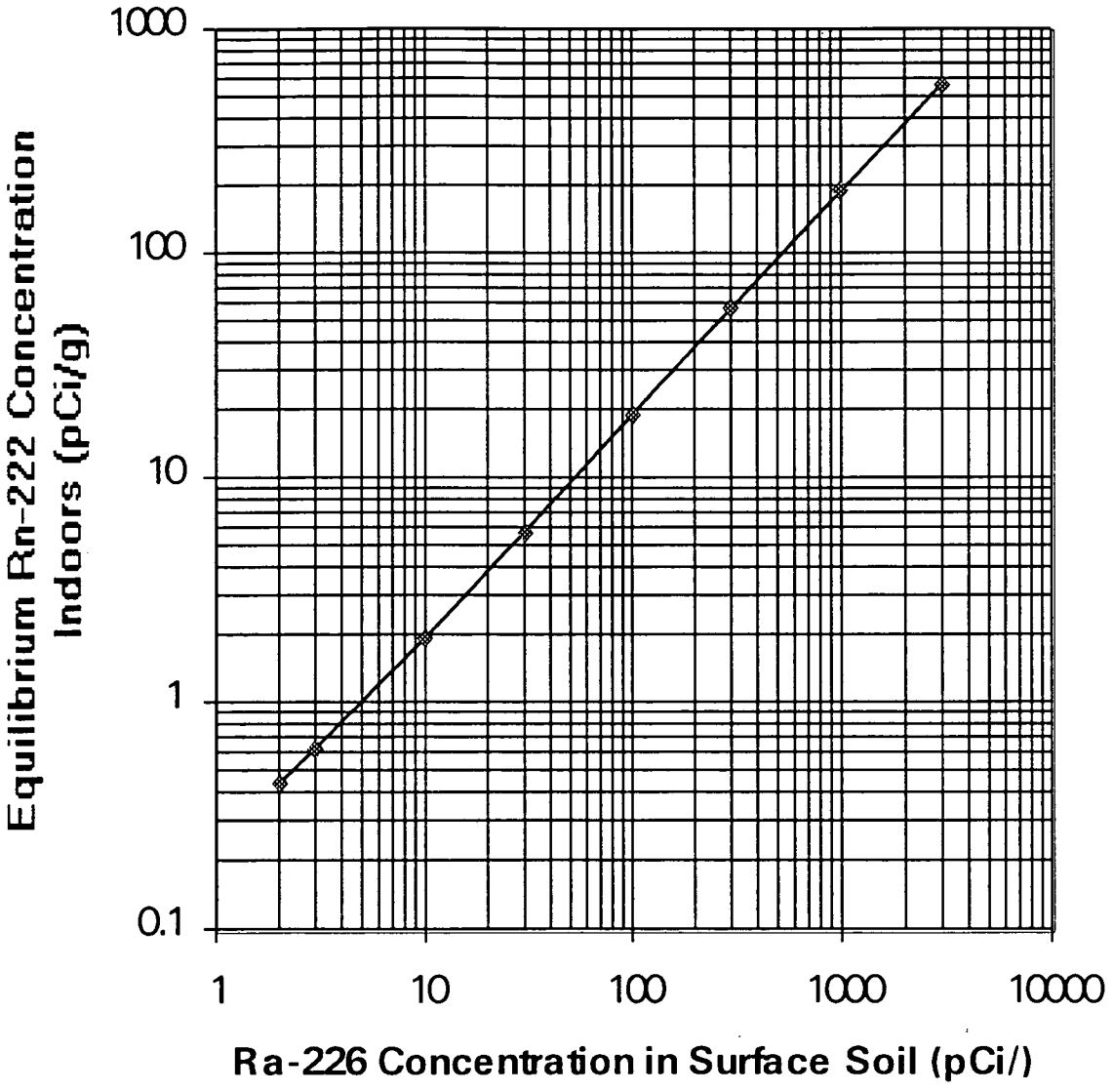

Table A.IX–1
Uranium (Total Activity) in Milk from Local and Background Dairies[a]
Radiological and Environmental Monitoring 1993

Month	Local Dairy (pCi/L)	Background Dairy[b] (pCi/L)
January	0.009	0.036
February	0.059	0.094
March	0.047	0.218
April	0.108	0.091
May	0.138	0.058
June	0.145	0.114
July	0.020	0.067
August	0.019	0.108
September	0.002	0.034
October	0.024	0.012
November	NA	NA
December	NA	NA
Year–end Summary Calculations:		
Minimum:	0.002	0.012
Maximum:	0.145	0.218
Average:	0.057	0.083

[a]Results are presented in terms of total activity. Data are not validated.
[b]Background dairy is located about 37 km (23 miles) west–southwest of the Fernald site.

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Table A.IX–2
Total Uranium (ug/L) in Water of Private Wells Sampled by Radiological and Environmental Monitoring 1992–1993

Well[a]	Maximum Uranium (ug/L)	Month of Maximum 1992	Average Uranium (ug/L)	Well[a]	Maximum Uranium (ug/L)	Month of Maximum 1993	Average Uranium (ug/L)
1	0.3	JAN	0.13	1	0.2	MAY	0.10
3	0.4	JAN	0.14	3	0.2	JUN	0.10
4	2.1	APR, NOV	1.76	4	3.2	SEP	2.01
7	2.1	APR, JUL	1.78	7	1.6	JAN, FEB, APR	0.88
8	1.1	APR, MAY	0.91	8	0.9	JAN, MAR, MAY, JUN, JUL, AUG, OCT	0.86
9	2.2	APR	1.53	9	2.1	APR	1.54
10	1	DEC	0.61	10	0.7	MAR	0.55
11	2.7	DEC	1.84	11	2.2	JAN	1.65
12	307	JUL	150.92	12	170	APR	91.27
13	37	SEP, OCT, NOV, DEC (BIWEEKLY)	33.86	13	64	AUG	53.50
13	43	NOV, DEC (BIWEEKLY)	30.09	13	78	DEC	66.67
13	50	DEC (BIWEEKLY)	33.89	13	63	AUG	62.00
13	51	DEC (BIWEEKLY)	29.38	13	70	APR	56.58
14	2.5	MAR, APR, OCT	2.18	13	76	DEC	61.67
14	2.6	FEB	2.13	13	73	NOV	63.83
14	2.5	MAR, APR, MAY, OCT	2.13	14	2	JAN, OCT	1.76
15	260	JUN	228.56	14	1.9	JAN,FEB,MAR,MAY,JUL,AUG,SEP,OCT,DEC	1.85
16	1.7	APR	0.71	15	310	SEP	286.36
17	50	JUN	27.42	16	0.9	JAN, MAR, APR	0.73
18	0.7	FEB	0.46	18	0.5	MAY	0.40
19	0.3	NOV	0.11	19	0.1	JAN, FEB, MAR, APR, SEP	0.05
21	0.4	JAN, FEB, MAR, APR, JUN, JUL, AUG, DEC	0.37	21	0.4	JAN, MAY, OCT	0.32
22	4.9	NOV	1.42	22	1.7	APR	1.16
23	1.1	MAR	0.77	23	1.1	MAR	0.83
24	0.7	APR, JUL, AUG	0.55	24	0.6	JAN, FEB, MAR, JUL	0.51
25	0.5	APR, JUL	0.43	25	0.4	JAN	0.14
26	0.6	JUN	0.27	26	0.2	MAR, APR, NOV	0.12
27	0.8	FEB, JUN	0.54	28	1	JUL	0.32
28	1	JAN, APR, JUL	0.98	29	2.3	JAN, MAR	1.97
29	2.4	JUN, DEC	1.83	30	0.5	JAN, JUL, OCT	0.17
30	0.5	OCT	0.43	32	0.3	APR	0.07
32	0.6	APR	0.17	33	0.6	MAR, APR	0.49
33	0.7	APR	0.51	35	2.4	MAY	1.91
35	2	MAR	1.78	36	1.4	NOV	1.13
36	1.6	JAN	1.04	37	1.7	JUL	0.85
37	1	JUL – ANNUAL ONLY	0.50	38	0.4	FEB, APR	0.10
38	0.6	JAN	0.33	39	9.9	MAR	6.52
39	8.7	JUL	6.61	40	4.3	JAN	3.64
40	4.3	MAR	3.28	41	0.6	MAR, JUL	0.52
41	1.1	APR	0.60	55	0.5	APR, OCT	0.14
55		APR, JUL – NEW 1/92	0.34	56	2.6	OCT	0.38
56	0.6	JUL, OCT – NEW 7/92	0.40				

[a] Locations appear on Figure A.IX–8.

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Table A.IX–3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
1040	AMMONIA	2.90	4.50	3.91
1040	ARSENIC	0.02	0.12	0.05
1040	BARIUM	0.42	0.45	0.44
1040	CALCIUM	75.70	84.00	78.28
1040	CHLORIDE	7.50	50.00	31.58
1040	CHROMIUM	0.02	0.02	0.02
1040	FLUORIDE	0.50	1.20	0.71
1040	IRON	2.61	3.31	3.08
1040	LEAD	0.05	0.05	0.05
1040	MAGNESIUM	23.30	24.00	23.48
1040	MANGANESE	0.02	0.02	0.02
1040	MOLYBDENUM	0.03	0.03	0.03
1040	NITRATE	0.01	0.10	0.06
1040	PHENOLS	7.00	20.00	13.50
1040	PHOSPHORUS	0.12	0.17	0.14
1040	POTASSIUM	1.31	11.20	3.98
1040	RADIUM–228	4.50	4.50	4.50
1040	SILVER	0.02	0.02	0.02
1040	SODIUM	29.10	31.00	29.85
1040	SULFATE	68.20	68.20	68.20
1040	TOTAL KJELDAHL NITROGEN	4.20	4.34	4.27
1040	TOTAL ORGANIC NITROGEN	0.30	5.50	2.37
1040	URANIUM–234	1.10	1.10	1.10
1058	AMMONIA	0.10	2.11	1.48
1058	ARSENIC	0.02	0.02	0.02
1058	BARIUM	0.27	0.40	0.36
1058	CALCIUM	64.60	85.00	76.15
1058	CHLORIDE	14.00	21.00	18.33
1058	CHROMIUM	0.02	0.02	0.02
1058	FLUORIDE	0.50	0.76	0.64
1058	IRON	2.57	3.29	2.94
1058	MAGNESIUM	19.80	23.70	22.45
1058	MANGANESE	0.02	0.02	0.02
1058	MOLYBDENUM	0.01	0.01	0.01
1058	PHENOLS	6.00	17.00	11.00
1058	PHOSPHORUS	0.05	0.11	0.09
1058	POTASSIUM	0.78	1.60	1.06
1058	SODIUM	13.60	17.30	16.20
1058	SULFATE	2.00	5.00	3.71
1058	TOTAL KJELDAHL NITROGEN	1.60	2.33	1.97
1058	TOTAL ORGANIC NITROGEN	0.20	1.50	0.63
1059	BARIUM	0.05	0.05	0.05
1059	CALCIUM	74.40	91.00	81.00
1059	CHLORIDE	5.60	8.50	7.05
1059	CHROMIUM	0.02	0.02	0.02
1059	COPPER	0.03	0.19	0.11
1059	FLUORIDE	0.20	0.48	0.38
1059	IRON	0.08	0.08	0.08
1059	LEAD	0.01	0.01	0.01
1059	MAGNESIUM	20.40	22.60	21.88
1059	MANGANESE	0.01	0.04	0.02
1059	NITRATE	0.20	0.22	0.21
1059	PHENOLS	10.00	20.00	15.00
1059	PHOSPHORUS	0.04	0.05	0.05
1059	POTASSIUM	8.20	11.00	9.55
1059	SODIUM	18.00	56.30	41.33
1059	SULFATE	3.24	86.00	36.56
1059	THORIUM, TOTAL 1	3.00	3.00	3.00

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
1059	TOTAL ORGANIC NITROGEN	0.10	0.30	0.20
1059	URANIUM, TOTAL	0.80	0.90	0.85
1060	AMMONIA	0.10	0.17	0.14
1060	ARSENIC	0.00	0.00	0.00
1060	BARIUM	0.06	0.06	0.06
1060	CALCIUM	99.20	130.00	116.70
1060	CHLORIDE	20.00	35.70	26.45
1060	CHROMIUM	0.03	0.03	0.03
1060	COPPER	0.02	0.02	0.02
1060	CYANIDE	0.01	0.01	0.01
1060	FLUORIDE	0.18	0.61	0.35
1060	GROSS BETA	4.00	24.00	14.00
1060	IRON	0.07	2.73	0.81
1060	MAGNESIUM	25.10	47.80	34.28
1060	MANGANESE	0.02	0.34	0.11
1060	NICKEL	0.02	0.02	0.02
1060	NITRATE	0.10	1.14	0.39
1060	PH	7.44	7.66	7.55
1060	PHENOLS	0.01	20.00	10.01
1060	PHOSPHORUS	0.06	0.09	0.07
1060	POTASSIUM	1.64	31.50	15.23
1060	SILVER	0.05	0.05	0.05
1060	SODIUM	7.19	26.50	15.27
1060	SPECIFIC CONDUCTIVITY	620.00	837.00	728.50
1060	SULFATE	53.00	175.00	103.67
1060	TOTAL DISSOLVED SOLIDS	484.00	490.00	487.00
1060	TOTAL KJELDAHL NITROGEN	0.18	0.32	0.25
1060	TOTAL ORGANIC CARBON	3.25	3.25	3.25
1060	TOTAL ORGANIC HALIDES	0.01	0.01	0.01
1060	TOTAL ORGANIC NITROGEN	0.18	0.32	0.25
1060	URANIUM, TOTAL	1.00	2.00	1.50
1060	URANIUM-234	1.90	1.90	1.90
1060	ZINC	0.09	0.09	0.09
1124	AMMONIA	0.20	1.37	0.79
1124	BARIUM	0.04	0.04	0.04
1124	CADMIUM	0.01	0.01	0.01
1124	CALCIUM	130.00	160.00	141.75
1124	CHLORIDE	33.00	200.00	85.25
1124	CHROMIUM	0.03	0.03	0.03
1124	COPPER	0.01	0.01	0.01
1124	FLUORIDE	0.20	0.40	0.32
1124	IRON	0.12	0.13	0.12
1124	MAGNESIUM	6.00	50.30	36.85
1124	MANGANESE	0.02	0.07	0.05
1124	NICKEL	0.02	0.02	0.02
1124	NITRATE	0.17	1.60	0.82
1124	PHENOLS	7.00	7.00	7.00
1124	PHOSPHORUS	0.05	0.16	0.10
1124	POTASSIUM	2.30	2.69	2.48
1124	SODIUM	22.80	34.00	26.63
1124	SULFATE	6.78	290.00	181.95
1124	TOTAL KJELDAHL NITROGEN	0.28	0.28	0.28
1124	TOTAL ORGANIC HALIDES	0.02	0.02	0.02
1124	TOTAL ORGANIC NITROGEN	0.10	0.53	0.30
1124	URANIUM, TOTAL	6.00	13.90	9.28
1124	URANIUM-234	2.40	3.60	2.80
1124	URANIUM-238	2.10	3.17	2.62
2026	AMMONIA	0.10	0.10	0.10

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
2026	ARSENIC	0.30	0.55	0.43
2026	BARIUM	0.04	0.07	0.06
2026	CALCIUM	84.20	110.00	93.43
2026	CHLORIDE	3.00	120.00	52.23
2026	CHROMIUM	0.02	0.02	0.02
2026	COPPER	0.02	0.02	0.02
2026	FLUORIDE	0.20	0.34	0.26
2026	IRON	0.02	0.02	0.02
2026	MAGNESIUM	18.30	33.00	27.48
2026	MOLYBDENUM	0.01	0.01	0.01
2026	NITRATE	6.80	16.00	9.80
2026	PHENOLS	9.00	30.00	16.33
2026	PHOSPHORUS	0.01	0.01	0.01
2026	POTASSIUM	2.16	2.70	2.46
2026	RADIUM-228	5.00	5.00	5.00
2026	SILVER	0.03	0.03	0.03
2026	SODIUM	11.70	55.00	28.73
2026	SULFATE	24.00	202.00	76.25
2026	TOTAL KJELDAHL NITROGEN	0.48	0.48	0.48
2026	TOTAL ORGANIC NITROGEN	0.10	0.48	0.23
2026	URANIUM, TOTAL	0.30	0.30	0.30
2036	BARIUM	0.03	0.04	0.04
2036	CALCIUM	92.80	110.00	99.05
2036	CHLORIDE	2.00	12.30	8.43
2036	CHROMIUM	0.03	0.03	0.03
2036	COPPER	0.03	0.27	0.11
2036	FLUORIDE	0.10	0.27	0.20
2036	IRON	0.01	0.01	0.01
2036	MAGNESIUM	24.70	26.20	25.35
2036	NITRATE	2.88	14.40	8.67
2036	PHENOLS	10.00	30.00	17.00
2036	PHOSPHORUS	0.04	0.06	0.05
2036	POTASSIUM	1.27	1.70	1.40
2036	SILVER	0.11	0.11	0.11
2036	SODIUM	3.10	3.41	3.27
2036	SULFATE	7.00	39.90	26.48
2036	TOTAL KJELDAHL NITROGEN	0.21	0.21	0.21
2036	TOTAL ORGANIC NITROGEN	0.10	0.21	0.14
2036	URANIUM, TOTAL	0.30	0.30	0.30
2050	AMMONIA	1.50	1.50	1.50
2050	ARSENIC	0.00	0.26	0.09
2050	BARIUM	0.52	0.57	0.54
2050	CADMIUM	0.01	0.01	0.01
2050	CALCIUM	82.90	89.00	86.45
2050	CHLORIDE	76.00	100.00	84.97
2050	CHROMIUM	0.03	0.03	0.03
2050	FLUORIDE	0.70	1.20	0.88
2050	IRON	1.63	2.46	2.13
2050	LEAD	0.01	0.01	0.01
2050	MAGNESIUM	27.00	29.10	28.05
2050	MANGANESE	0.09	0.11	0.10
2050	MOLYBDENUM	0.01	0.01	0.01
2050	PHENOLS	20.00	40.00	30.00
2050	PHOSPHORUS	0.08	0.90	0.30
2050	POTASSIUM	1.40	2.00	1.63
2050	RADIUM-226	1.80	1.80	1.80
2050	SODIUM	46.30	54.00	48.91
2050	SULFATE	4.00	197.00	100.50

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Table A.IX–3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
2050	TOTAL KJELDAHL NITROGEN	0.60	0.60	0.60
2050	TOTAL ORGANIC NITROGEN	0.30	1.00	0.65
2050	URANIUM, TOTAL	0.80	0.80	0.80
2056	AMMONIA	2.70	3.24	3.06
2056	ARSENIC	0.03	0.25	0.10
2056	BARIUM	0.66	0.71	0.68
2056	CALCIUM	63.60	76.00	71.60
2056	CHLORIDE	6.00	46.00	33.88
2056	CHROMIUM	0.03	0.03	0.03
2056	FLUORIDE	0.90	1.25	1.08
2056	IRON	2.15	3.51	2.92
2056	LEAD	0.03	0.03	0.03
2056	MAGNESIUM	22.50	26.00	24.85
2056	MANGANESE	0.01	0.02	0.02
2056	MOLYBDENUM	0.02	0.02	0.02
2056	NITRATE	0.02	0.02	0.02
2056	PHENOLS	9.00	14.00	11.50
2056	PHOSPHORUS	0.07	0.13	0.10
2056	POTASSIUM	1.30	13.40	4.48
2056	SODIUM	28.10	40.00	35.18
2056	SULFATE	6.00	54.40	30.20
2056	TOTAL KJELDAHL NITROGEN	2.70	3.50	3.10
2056	TOTAL ORGANIC NITROGEN	0.20	2.75	1.07
2056	URANIUM, TOTAL	2.70	2.70	2.70
2057	AMMONIA	0.10	0.20	0.14
2057	ARSENIC	0.00	0.04	0.02
2057	BARIUM	0.04	0.05	0.04
2057	CALCIUM	83.40	90.00	85.25
2057	CHLORIDE	3.00	20.10	9.37
2057	CHROMIUM	0.02	0.02	0.02
2057	COPPER	0.01	0.01	0.01
2057	FLUORIDE	0.20	0.38	0.31
2057	IRON	0.02	1.38	0.88
2057	MAGNESIUM	22.00	23.10	22.65
2057	MANGANESE	0.40	0.48	0.45
2057	MOLYBDENUM	0.01	0.01	0.01
2057	NITRATE	0.03	0.03	0.03
2057	PHENOLS	7.00	20.00	13.00
2057	PHOSPHORUS	0.08	0.20	0.15
2057	POTASSIUM	0.80	1.60	1.04
2057	SILVER	0.03	0.03	0.03
2057	SODIUM	3.64	3.99	3.85
2057	SULFATE	23.00	43.70	28.68
2057	TOTAL KJELDAHL NITROGEN	0.23	0.23	0.23
2057	TOTAL ORGANIC NITROGEN	0.11	0.30	0.21
2057	URANIUM, TOTAL	0.10	0.30	0.20
2060	1,1,1–TRICHLOROETHANE	6.00	6.00	6.00
2060	ALUMINUM	0.13	0.13	0.13
2060	BARIUM	0.04	0.05	0.04
2060	CALCIUM	81.80	93.30	86.70
2060	CHLORIDE	13.20	24.50	20.54
2060	CHROMIUM	0.03	0.03	0.03
2060	COPPER	0.02	0.02	0.02
2060	FLUORIDE	0.22	0.58	0.47
2060	GROSS ALPHA	59.00	59.00	59.00
2060	GROSS BETA	104.00	104.00	104.00
2060	IRON	0.12	0.16	0.14
2060	MAGNESIUM	20.80	24.30	22.30

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
2060	MANGANESE	0.00	0.01	0.01
2060	MERCURY	0.00	0.00	0.00
2060	NITRATE	0.34	7.42	2.55
2060	PH	7.49	7.49	7.49
2060	PHENOLS	15.00	20.00	17.50
2060	PHOSPHORUS	0.03	0.07	0.05
2060	POTASSIUM	2.18	5.58	3.31
2060	SODIUM	10.00	14.30	12.10
2060	SPECIFIC CONDUCTIVITY	580.00	580.00	580.00
2060	SULFATE	36.00	78.30	57.50
2060	THORIUM-230	1.49	1.49	1.49
2060	TOTAL DISSOLVED SOLIDS	444.00	444.00	444.00
2060	TOTAL KJELDAHL NITROGEN	0.15	0.15	0.15
2060	TOTAL ORGANIC HALIDES	0.02	0.03	0.03
2060	TOTAL ORGANIC NITROGEN	0.15	0.15	0.15
2060	URANIUM, TOTAL	171.00	332.00	243.40
2060	URANIUM-234	45.70	84.20	71.42
2060	URANIUM-235/236	2.70	5.10	3.58
2060	URANIUM-238	46.70	99.30	75.84
2060	ZINC	0.10	0.36	0.23
2061	ALUMINUM	0.11	0.11	0.11
2061	AMMONIA	0.21	0.21	0.21
2061	ARSENIC	0.31	0.31	0.31
2061	BARIUM	0.04	0.05	0.04
2061	CADMIUM	0.00	0.01	0.00
2061	CALCIUM	75.80	91.80	83.58
2061	CHLORIDE	17.88	48.40	25.46
2061	CHROMIUM	0.03	0.04	0.03
2061	COPPER	0.02	0.05	0.03
2061	FLUORIDE	0.17	0.45	0.34
2061	IRON	0.07	0.18	0.12
2061	MAGNESIUM	19.30	23.90	21.21
2061	MANGANESE	0.00	0.02	0.01
2061	MOLYBDENUM	0.03	0.03	0.03
2061	NICKEL	0.01	0.01	0.01
2061	NITRATE	0.30	9.84	2.70
2061	PHENOLS	10.00	30.00	20.00
2061	PHOSPHORUS	0.02	0.05	0.04
2061	POTASSIUM	2.27	3.50	2.99
2061	SELENIUM	0.00	0.00	0.00
2061	SILICON	4.26	4.26	4.26
2061	SILVER	0.01	0.01	0.01
2061	SODIUM	10.03	13.70	11.31
2061	SULFATE	6.00	70.60	42.57
2061	TOTAL DISSOLVED SOLIDS	384.00	384.00	384.00
2061	TOTAL KJELDAHL NITROGEN	0.14	0.15	0.14
2061	TOTAL ORGANIC NITROGEN	0.15	0.15	0.15
2061	URANIUM, TOTAL	247.00	312.00	274.20
2061	URANIUM-234	77.60	104.00	89.70
2061	URANIUM-235/236	2.90	5.54	4.21
2061	URANIUM-238	76.00	104.00	90.10
2061	VANADIUM	0.02	0.02	0.02
2061	ZINC	0.10	0.10	0.10
2104	AMMONIA	0.10	0.10	0.10
2104	ARSENIC	0.25	0.25	0.25
2104	BARIUM	0.05	0.06	0.06
2104	CALCIUM	112.50	129.00	119.08
2104	CHLORIDE	23.00	28.00	25.60

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
2104	CHROMIUM	0.01	0.02	0.02
2104	FLUORIDE	0.19	0.29	0.22
2104	IRON	2.38	3.57	2.85
2104	MAGNESIUM	28.88	32.80	30.35
2104	MANGANESE	0.27	0.31	0.28
2104	MOLYBDENUM	0.01	0.01	0.01
2104	NICKEL	0.02	0.02	0.02
2104	NITRATE	0.09	0.10	0.10
2104	PHENOLS	22.00	31.00	27.67
2104	PHOSPHORUS	0.02	0.07	0.04
2104	POTASSIUM	2.00	2.76	2.35
2104	RADIUM-228	3.10	3.10	3.10
2104	SILICON	2.50	2.70	2.60
2104	SODIUM	11.00	12.20	11.45
2104	SULFATE	59.40	136.00	97.43
2104	TOTAL ORGANIC CARBON	1.00	1.00	1.00
2104	TOTAL ORGANIC NITROGEN	0.10	0.10	0.10
2104	URANIUM, TOTAL	0.30	0.40	0.37
2105	AMMONIA	0.40	8.00	4.00
2105	ARSENIC	0.02	0.11	0.06
2105	BARIUM	0.09	0.50	0.36
2105	CALCIUM	30.40	87.00	64.23
2105	CHLORIDE	8.00	65.00	46.75
2105	CHROMIUM	0.02	0.02	0.02
2105	FLUORIDE	0.50	0.75	0.65
2105	IRON	0.02	3.00	1.95
2105	LEAD	0.06	0.06	0.06
2105	MAGNESIUM	15.80	24.20	21.33
2105	MANGANESE	0.01	0.03	0.02
2105	MOLYBDENUM	0.01	0.01	0.01
2105	NITRATE	0.10	0.10	0.10
2105	PHOSPHATE	0.56	0.56	0.56
2105	PHOSPHORUS	0.10	0.46	0.22
2105	POTASSIUM	0.17	3.12	1.40
2105	SILVER	0.01	0.01	0.01
2105	SODIUM	33.00	179.00	86.75
2105	SULFATE	7.00	20.30	13.65
2105	TOTAL KJELDAHL NITROGEN	0.53	4.20	2.37
2105	TOTAL ORGANIC NITROGEN	0.13	0.90	0.43
2121	BARIUM	0.04	0.04	0.04
2121	CALCIUM	70.20	95.20	87.50
2121	CHLORIDE	0.02	25.00	10.67
2121	CHROMIUM	0.02	0.02	0.02
2121	COPPER	0.12	0.18	0.15
2121	FLUORIDE	0.20	0.35	0.29
2121	LEAD	0.08	0.08	0.08
2121	MAGNESIUM	15.70	21.60	19.38
2121	MANGANESE	0.00	0.07	0.03
2121	NITRATE	0.40	6.75	2.61
2121	PHENOLS	20.00	25.00	22.50
2121	PHOSPHORUS	0.02	0.06	0.04
2121	POTASSIUM	3.00	3.01	3.00
2121	SODIUM	11.60	16.70	15.13
2121	SULFATE	43.00	64.00	50.75
2121	THORIUM, TOTAL	2.00	2.00	2.00
2121	THORIUM-230	1.70	1.70	1.70
2121	TOTAL KJELDAHL NITROGEN	0.28	0.60	0.44
2121	TOTAL ORGANIC NITROGEN	0.28	0.40	0.33

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Table A.IX–3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
2121	URANIUM, TOTAL	0.60	0.90	0.75
2122	BARIUM	0.04	0.06	0.04
2122	CALCIUM	76.70	93.00	86.05
2122	CHLORIDE	5.00	23.00	17.05
2122	CHROMIUM	0.01	0.01	0.01
2122	COPPER	0.01	0.02	0.01
2122	FLUORIDE	0.20	0.34	0.24
2122	LEAD	0.06	0.06	0.06
2122	MAGNESIUM	17.00	29.80	20.78
2122	MOLYBDENUM	0.03	0.04	0.03
2122	NITRATE	0.80	9.32	4.26
2122	PHENOLS	10.00	20.00	14.67
2122	PHOSPHORUS	0.02	0.18	0.10
2122	POTASSIUM	2.07	2.80	2.53
2122	SODIUM	9.41	22.40	13.68
2122	SULFATE	3.08	58.00	32.77
2122	THORIUM–230	1.00	1.00	1.00
2122	TOTAL KJELDAHL NITROGEN	0.22	0.22	0.22
2122	TOTAL ORGANIC NITROGEN	0.20	0.22	0.21
2122	URANIUM, TOTAL	0.20	2.00	0.73
2123	BARIUM	0.04	0.04	0.04
2123	CALCIUM	81.70	92.00	88.45
2123	CHLORIDE	11.50	11.90	11.70
2123	CHROMIUM	0.02	0.02	0.02
2123	COPPER	0.02	0.02	0.02
2123	FLUORIDE	0.19	0.32	0.25
2123	MAGNESIUM	20.70	22.90	21.70
2123	MANGANESE	0.00	0.01	0.00
2123	NITRATE	0.50	11.40	6.40
2123	PHENOLS	20.00	20.00	20.00
2123	PHOSPHORUS	0.02	0.02	0.02
2123	POTASSIUM	1.20	1.70	1.36
2123	SODIUM	1.96	2.90	2.58
2123	SULFATE	3.24	36.00	27.06
2123	THORIUM–228	1.00	1.00	1.00
2123	THORIUM–230	2.10	2.10	2.10
2123	TOTAL ORGANIC NITROGEN	0.10	0.10	0.10
2123	URANIUM, TOTAL	0.30	0.40	0.35
3062	ALUMINUM	0.10	0.10	0.10
3062	AMMONIA	0.10	0.11	0.11
3062	BARIUM	0.06	0.07	0.06
3062	CADMIUM	0.00	0.01	0.01
3062	CALCIUM	91.80	109.00	97.70
3062	CHLORIDE	10.74	46.60	23.21
3062	CHROMIUM	0.03	0.03	0.03
3062	COPPER	0.01	0.01	0.01
3062	FLUORIDE	0.12	0.38	0.26
3062	GROSS ALPHA	10.00	10.00	10.00
3062	GROSS BETA	23.00	23.00	23.00
3062	IRON	0.21	1.64	1.12
3062	LEAD	0.00	0.02	0.01
3062	MAGNESIUM	22.70	26.00	23.65
3062	MANGANESE	0.29	0.40	0.37
3062	MERCURY	0.00	0.00	0.00
3062	PH	7.44	7.44	7.44
3062	PHENOLS	11.00	26.00	18.50
3062	PHOSPHORUS	0.04	0.05	0.05
3062	POTASSIUM	2.16	3.04	2.70

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
3062	SILICON	4.14	4.14	4.14
3062	SILVER	0.01	0.01	0.01
3062	SODIUM	10.60	12.90	12.08
3062	SPECIFIC CONDUCTIVITY	600.00	600.00	600.00
3062	SULFATE	29.00	71.30	56.62
3062	TOTAL DISSOLVED SOLIDS	444.00	444.00	444.00
3062	TOTAL KJELDAHL NITROGEN	0.15	8.11	4.13
3062	TOTAL ORGANIC HALIDES	39.00	39.00	39.00
3062	TOTAL ORGANIC NITROGEN	8.11	8.11	8.11
3062	URANIUM, TOTAL	37.00	62.00	45.40
3062	URANIUM-234	14.00	21.70	16.04
3062	URANIUM-238	13.60	22.00	16.02
3062	VANADIUM	0.02	0.02	0.02
3062	ZINC	0.02	0.02	0.02
3063	ARSENIC	0.30	0.30	0.30
3063	BARIUM	0.05	0.07	0.05
3063	CADMIUM	0.01	0.01	0.01
3063	CALCIUM	86.30	100.00	94.38
3063	CHLORIDE	6.00	24.50	17.67
3063	CHROMIUM	0.03	0.03	0.03
3063	COPPER	0.09	0.14	0.12
3063	FLUORIDE	0.20	0.37	0.28
3063	IRON	0.01	0.07	0.04
3063	MAGNESIUM	22.10	24.40	23.72
3063	MANGANESE	0.00	0.01	0.01
3063	MOLYBDENUM	0.01	0.03	0.02
3063	NICKEL	0.02	0.02	0.02
3063	NITRATE	0.80	5.44	2.58
3063	PHENOLS	20.00	20.00	20.00
3063	PHOSPHORUS	0.03	0.05	0.04
3063	POTASSIUM	2.50	3.28	2.73
3063	RADIUM-228	3.10	3.10	3.10
3063	SODIUM	12.10	14.70	13.57
3063	SULFATE	8.00	65.00	45.05
3063	TOTAL KJELDAHL NITROGEN	0.26	0.26	0.26
3063	TOTAL ORGANIC NITROGEN	0.10	0.26	0.15
3063	URANIUM, TOTAL	0.40	0.60	0.50
3099	AMMONIA	0.10	0.10	0.10
3099	BARIUM	0.06	0.06	0.06
3099	CALCIUM	95.50	110.00	101.35
3099	CHLORIDE	41.00	49.50	45.25
3099	CHROMIUM	0.02	0.02	0.02
3099	COPPER	0.03	0.08	0.05
3099	FLUORIDE	0.20	0.29	0.23
3099	MAGNESIUM	31.90	33.00	32.55
3099	MANGANESE	0.01	0.01	0.01
3099	MOLYBDENUM	0.01	0.03	0.02
3099	NICKEL	0.03	0.03	0.03
3099	NITRATE	0.45	24.90	9.95
3099	PHENOLS	20.00	20.00	20.00
3099	PHOSPHORUS	0.07	0.07	0.07
3099	POTASSIUM	2.30	2.86	2.59
3099	SODIUM	13.00	17.52	15.16
3099	SULFATE	4.00	72.00	51.05
3099	THORIUM-228	1.40	1.40	1.40
3099	THORIUM-230	1.60	1.60	1.60
3099	TOTAL ORGANIC NITROGEN	0.10	0.10	0.10
3099	URANIUM, TOTAL	0.50	0.60	0.55

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Table A.IX-3
Inorganic Constitutent Concentrations in RI/FS Monitoring Wells[a]
Radiological and Environmental Monitoring 1993

Location	Analyte	Minimum (mg/L)	Maximum (mg/L)	Average (mg/L)
3100	AMMONIA	0.20	0.20	0.20
3100	BARIUM	0.04	0.05	0.05
3100	CALCIUM	92.80	100.00	97.13
3100	CHLORIDE	28.00	42.50	36.50
3100	CHROMIUM	0.03	0.03	0.03
3100	FLUORIDE	0.18	0.27	0.22
3100	IRON	0.03	0.08	0.06
3100	MAGNESIUM	28.00	29.60	28.95
3100	MANGANESE	0.01	0.02	0.01
3100	MOLYBDENUM	0.01	0.01	0.01
3100	NITRATE	1.60	10.90	4.93
3100	PHENOLS	10.00	26.00	18.67
3100	PHOSPHORUS	0.06	0.06	0.06
3100	POTASSIUM	2.30	2.42	2.38
3100	SODIUM	13.70	21.00	17.15
3100	SULFATE	3.08	54.00	35.52
3100	THORIUM, TOTAL	2.00	2.00	2.00
3100	THORIUM-230	1.30	1.30	1.30
3100	TOTAL ORGANIC NITROGEN	0.10	0.10	0.10
3100	URANIUM, TOTAL	0.50	1.10	0.73
4023	AMMONIA	0.20	0.20	0.20
4023	BARIUM	0.07	0.09	0.08
4023	CALCIUM	68.50	110.00	88.48
4023	CHLORIDE	6.00	50.00	21.58
4023	CHROMIUM	0.03	0.03	0.03
4023	COPPER	0.02	0.10	0.06
4023	FLUORIDE	0.10	0.26	0.20
4023	IRON	0.03	1.31	0.50
4023	LEAD	0.00	0.00	0.00
4023	MAGNESIUM	21.40	31.00	26.35
4023	MANGANESE	0.01	0.47	0.31
4023	MOLYBDENUM	0.01	0.01	0.01
4023	NITRATE	3.24	7.20	5.22
4023	PHENOLS	8.00	14.00	10.67
4023	PHOSPHORUS	0.06	0.06	0.06
4023	POTASSIUM	1.30	2.77	2.09
4023	SODIUM	5.34	31.00	17.20
4023	SULFATE	8.00	58.00	39.33
4023	TOTAL ORGANIC NITROGEN	0.10	0.10	0.10
4023	URANIUM, TOTAL	0.40	1.70	0.90

[a] Data are not validated.
[b] Calculations are determined from those results above the minimum detection limit.

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Table A.IX–4
(Non–RI/FS Monitoring Data)
Off–Property Monitoring Wells
Inorganic Constituents in Radiological and Environmental Monitoring 1993[a]

Location		Arsenic	Barium	Cadmium	Calcium	Chromium	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Zinc
1		18.4	417.6		79820.0			3601.0	4.8	24950.0	19.2					20310.0	26.2
9					72830.0					27070.0	232.3					30090.0	25.3
8					94000.0			203.4		29260.0	146.8					19160.0	54.7
3		18.2	506.4		78460.0			3679.0		24590.0	15.1					34660.0	
4					127900.0			100.0	6.8	59880.0						47880.0	53.9
7					112200.0			1942.0		31930.0	142.7					9302.0	56.3
10					123500.0			3974.0		32620.0	291.1					14500.0	
11					76830.0		29.9		19.7	22630.0						10190.0	229.9
12					86320.0		55.3	3319.0	43.3	23000.0	126.5					10750.0	1485.0
13					90970.0					25380.0	31.3					20880.0	32.3
13					89780.0					24780.0	21.5					19580.0	69.7
14					106700.0			632.1	7.7	30110.0	336.5		10290.0			24500.0	74.9
15					97100.0		39.1	722.1	7.4	25920.0						18410.0	60.4
16					111300.0			2182.0	14.8	31320.0	327.2					58510.0	103.2
18					101300.0			3091.0		26120.0	249.5					13440.0	82.2
19		49.1			73940.0			1513.0	17.9	34350.0	297.2		62770.0			28470.0	24.1
21					95790.0			1090.0		24410.0	244.5					10320.0	76.9
22					87760.0				19.8	23060.0	49.0					17210.0	24.2
23					88070.0		37.6	106.6		25130.0	74.3					6140.0	
24					118400.0					34120.0	103.6					9426.0	35.4
25					110400.0					31320.0						9224.0	
26					92730.0			3902.0	13.0	23380.0	304.4					11400.0	64.4
28					88600.0			114.4		25260.0	75.8					5992.0	
29					90620.0			1987.0	24.7	25230.0	194.7					9664.0	20.0
30					86020.0		26.6			23870.0						14390.0	
32					92710.0			908.3	13.2	23880.0	355.7		12000.0			7561.0	
33					97580.0		80.6			25890.0						13730.0	
34	KITCHEN				102700.0		41.0	1419.0		25700.0						11990.0	213.0
34	OUTSIDE				104100.0		41.4	1455.0	8.5	25960.0	15.0					11420.0	218.7
35					115700.0					32390.0						33370.0	
36					121200.0		117.6		7.5	27140.0						15290.0	90.2
37	OFFICE				139300.0			293.5		36450.0	220.5					8277.0	
37	PIT				67780.0			251.0		25340.0	29.6					9089.0	
38					45690.0		37.0		7.6	10320.0	15.0					1330.0	2545.0
39					188600.0		26.8	177.7	3.0	33170.0	27.2					67690.0	20.5
40					139000.0			201.7	7.7	30200.0	18.5					21920.0	171.6
41					105300.0					35440.0						36610.0	
55					12290.0			166.9		30780.0						9068.0	
56					104600.0		33.6	1924.0		26260.0	133.4					5613.0	50.8
Parameter Summary:[b]																	
Minimum:		18.2	417.6	N/A	12290.0	N/A	26.6	100.0	3.0	10320.0	15.0	N/A	10290.0	N/A	N/A	1330.0	20.0
Maximum:		49.1	506.4	N/A	188600.0	N/A	117.6	3974.0	43.3	59880.0	355.7	N/A	62770.0	N/A	N/A	67690.0	2545.0
Average:		28.6	462.0	N/A	97894.6	N/A	47.2	1498.3	13.4	28169.5	146.4	N/A	28353.3	N/A	N/A	18650.2	227.3

[a] All displayed results are above the minimum detection limit and are measured in ug/L.
[b] All results below the minimum detection limit are not included in the summary calculations.
NA – Not available.

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Table A.IX-5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]
Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Hamilton Dam	1	Channel Catfish	Ictaluridae	44.7	731.00	2.60E-03	1.76E-03	104	388	
Hamilton Dam	2a	Channel Catfish	Ictaluridae	23.5	487.00	3.39E-03	2.30E-03	105	279	
Hamilton Dam	2b	Channel Catfish	Ictaluridae	23.5	487.00	5.24E-03	3.55E-03	106	242	
Hamilton Dam	3a	Channel Catfish	Ictaluridae	23.3	484.00	5.66E-03	3.83E-03	118	432	
Hamilton Dam	3b	Channel Catfish	Ictaluridae	23.3	484.00	9.32E-03	6.31E-03	119	432	
Hamilton Dam	4a	Channel Catfish	Ictaluridae	19.2	247.00	5.66E-03	3.83E-03	118	432	
Hamilton Dam	4b	Channel Catfish	Ictaluridae	19.2	247.00	9.32E-03	6.31E-03	119	432	
Hamilton Dam	10	Carp	Cyprinidae	41.5	967.00	1.39E-02	9.41E-03	115	598	
Hamilton Dam	11a	Carp	Cyprinidae	22.6	659.00	1.36E-02	9.21E-03	113	474	
Hamilton Dam	11b	Carp	Cyprinidae	22.6	659.00	1.23E-02	8.33E-03	114	392	
Hamilton Dam	12a	Carp	Cyprinidae	24.6	800.50	8.70E-03	5.89E-03	111	371	
Hamilton Dam	12b	Carp	Cyprinidae	24.6	800.50	7.09E-03	4.80E-03	112	580	
Hamilton Dam	5a	Carp	Cyprinidae	24.0	738.50	1.19E-02	8.06E-03	107	431	
Hamilton Dam	5b	Carp	Cyprinidae	24.0	738.50	5.40E-03	3.66E-03	108	550	
Hamilton Dam	6	Carp	Cyprinidae	39.5	859.00	4.00E-03	2.71E-03	110	552	
Hamilton Dam	7	Carp	Cyprinidae	48.2	1545.00	1.19E-02	8.06E-03	120	945	
Hamilton Dam	8	Mirror Carp	Cyprinidae	47.4	1053.00	1.15E-02	7.79E-03	121	713	hairlip, anus red, open jaw
Hamilton Dam	9	Carp	Cyprinidae	49.1	1652.00	6.70E-03	4.54E-03	117	751	
Hamilton Dam	13	Gizzard Shad	Clupeidae	8.5	6.97	1.96E-02	1.33E-02	109	264	
Hamilton Dam	14	Gizzard Shad	Clupeidae	10.8	12.05	1.96E-02	1.33E-02	109	264	
Hamilton Dam	15	Gizzard Shad	Clupeidae	10.5	11.36	1.96E-02	1.33E-02	109	264	
Hamilton Dam	16	Gizzard Shad	Clupeidae	8.0	5.31	1.96E-02	1.33E-02	109	264	
Hamilton Dam	17	Gizzard Shad	Clupeidae	9.3	7.52	1.96E-02	1.33E-02	109	264	
Hamilton Dam	18	Gizzard Shad	Clupeidae	8.7	7.21	1.96E-02	1.33E-02	109	264	
Hamilton Dam	19	Gizzard Shad	Clupeidae	7.9	5.04	1.96E-02	1.33E-02	109	264	
Hamilton Dam	20	Gizzard Shad	Clupeidae	10.0	10.18	1.96E-02	1.33E-02	109	264	
Hamilton Dam	21	Gizzard Shad	Clupeidae	8.9	7.57	1.96E-02	1.33E-02	109	264	
Hamilton Dam	22	Gizzard Shad	Clupeidae	7.4	4.36	1.96E-02	1.33E-02	109	264	
Hamilton Dam	23	Gizzard Shad	Clupeidae	6.9	3.53	1.96E-02	1.33E-02	109	264	
Hamilton Dam	24	Gizzard Shad	Clupeidae	10.1	10.64	1.96E-02	1.33E-02	109	264	
Hamilton Dam	25	Gizzard Shad	Clupeidae	6.7	3.18	1.96E-02	1.33E-02	109	264	
Hamilton Dam	26	Gizzard Shad	Clupeidae	8.1	5.35	1.96E-02	1.33E-02	109	264	
Hamilton Dam	27	Gizzard Shad	Clupeidae	7.0	3.51	1.96E-02	1.33E-02	109	264	
Hamilton Dam	28	Gizzard Shad	Clupeidae	9.9	9.59	1.96E-02	1.33E-02	109	264	
Hamilton Dam	29	Gizzard Shad	Clupeidae	6.8	3.46	1.96E-02	1.33E-02	109	264	
Hamilton Dam	30	Gizzard Shad	Clupeidae	7.1	3.70	1.96E-02	1.33E-02	109	264	
Hamilton Dam	31	Gizzard Shad	Clupeidae	9.7	8.43	1.96E-02	1.33E-02	109	264	laceration behind dorsal fin
Hamilton Dam	32	Gizzard Shad	Clupeidae	8.0	5.28	1.96E-02	1.33E-02	109	264	
Hamilton Dam	33	Gizzard Shad	Clupeidae	7.1	3.61	1.96E-02	1.33E-02	109	264	
Hamilton Dam	34	Gizzard Shad	Clupeidae	6.8	3.37	1.96E-02	1.33E-02	109	264	
Hamilton Dam	35	Gizzard Shad	Clupeidae	7.4	4.24	1.96E-02	1.33E-02	109	264	
Hamilton Dam	36	Gizzard Shad	Clupeidae	21.3	103.81	1.96E-02	1.33E-02	109	264	
Hamilton Dam	37	Gizzard Shad	Clupeidae	20.3	96.52	1.96E-02	1.33E-02	109	264	

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Table A.IX–5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]
Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Hamilton Dam	38	Gizzard Shad	Clupeidae	11.2	15.77	1.96E–02	1.33E–02	109	264	
Hamilton Dam	39	Gizzard Shad	Clupeidae	11.8	13.28	1.96E–02	1.33E–02	109	264	
Hamilton Dam	40	Gizzard Shad	Clupeidae	10.8	13.87	1.96E–02	1.33E–02	109	264	
Hamilton Dam	41	Gizzard Shad	Clupeidae	11.1	14.33	1.96E–02	1.33E–02	109	264	
Hamilton Dam	42	Gizzard Shad	Clupeidae	10.8	13.63	1.96E–02	1.33E–02	109	264	
Hamilton Dam	43	Gizzard Shad	Clupeidae	11.1	14.22	1.96E–02	1.33E–02	109	264	
Hamilton Dam	44	Gizzard Shad	Clupeidae	10.2	11.76	1.96E–02	1.33E–02	109	264	
Hamilton Dam	45	Gizzard Shad	Clupeidae	9.6	10.91	1.96E–02	1.33E–02	109	264	
Hamilton Dam	46	Gizzard Shad	Clupeidae	10.7	13.12	1.96E–02	1.33E–02	109	264	
Hamilton Dam	47	Gizzard Shad	Clupeidae	10.8	12.51	1.96E–02	1.33E–02	109	264	
Hamilton Dam	48	Gizzard Shad	Clupeidae	9.6	9.78	1.96E–02	1.33E–02	109	264	
Hamilton Dam	49	Gizzard Shad	Clupeidae	10.0	10.76	1.96E–02	1.33E–02	109	264	
Hamilton Dam	50	Golden Redhorse	Catostomidae	16.5	51.45	3.29E–03	2.23E–03	101	404	
Hamilton Dam	51	Golden Redhorse	Catostomidae	12.8	25.53	3.29E–03	2.23E–03	101	404	
Hamilton Dam	52	Golden Redhorse	Catostomidae	19.3	88.01	3.29E–03	2.23E–03	101	404	
Hamilton Dam	53	Golden Redhorse	Catostomidae	16.0	49.93	3.29E–03	2.23E–03	101	404	
Hamilton Dam	54	Golden Redhorse	Catostomidae	21.4	122.63	3.29E–03	2.23E–03	101	404	
Hamilton Dam	55	Golden Redhorse	Catostomidae	6.8	3.21	3.29E–03	2.23E–03	101	404	
Hamilton Dam	56	Golden Redhorse	Catostomidae	17.8	78.09	3.29E–03	2.23E–03	101	404	
Hamilton Dam	57	Golden Redhorse	Catostomidae	22.7	139.54	3.29E–03	2.23E–03	101	404	
Hamilton Dam	58	Golden Redhorse	Catostomidae	38.0	532.00	1.56E–02	1.06E–02	102	356	scales missing, left side
Hamilton Dam	59	Shorthead Redhorse	Catostomidae	29.9	287.60	1.94E–03	1.31E–03	103	388	
Hamilton Dam	60	Highfin Carpsucker	Catostomidae	37.9	634.00	1.08E–02	7.31E–03	116	436	
Hamilton Dam	61	White Bass	Percichthyidae	13.1	27.90	2.99E–03	2.02E–03	123	128	
Hamilton Dam	62	White Bass	Percichthyidae	12.0	20.04	2.99E–03	2.02E–03	123	128	
Hamilton Dam	63	Largemouth Bass	Centrarchidae	24.5	120.00			returned		
Hamilton Dam	64	Green Sunfish	Centrarchidae	12.0	34.58	2.99E–03	2.02E–03	123	128	
Hamilton Dam	65	Large Mouth Bass	Centrarchidae	9.4	10.61	2.99E–03	2.02E–03	123	128	
Hamilton Dam	66	Longear Sunfish	Centrarchidae	9.1	16.27	2.99E–03	2.02E–03	123	128	
Hamilton Dam	67	Green Sunfish	Centrarchidae	8.5	11.74	2.99E–03	2.02E–03	123	128	
Hamilton Dam	68	Largemouth Bass	Centrarchidae	38.5	792.00			returned		
Hamilton Dam	69	Immature Bass	Centrarchidae	9.5	10.90	1.86E–03	1.26E–03	122	342	
Hamilton Dam	70	Longear Sunfish	Centrarchidae	9.9	25.94	2.99E–03	2.02E–03	123	128	
Hamilton Dam	71	Largemouth Bass	Centrarchidae	28.0	318.00	N/A	N/A	returned		
Hamilton Dam	72	Longear Sunfish	Centrarchidae	11.4	30.61	2.99E–03	2.02E–03	123	128	
Hamilton Dam	73	Smallmouth Bass	Centrarchidae	11.0	16.25	1.86E–03	1.26E–03	122	342	
Hamilton Dam	74	Smallmouth Bass	Centrarchidae	31.8	506.00	1.86E–03	1.26E–03	122	342	
Paddy's Run	1	Brown Bullhead	Ictaluridae	42.5	791.00	3.66E–03	2.48E–03	201	480	
Paddy's Run	2	Flathead Catfish	Ictaluridae	35.5	439.00	4.48E–03	3.03E–03	216		
Paddy's Run	3a	Channel Catfish	Ictaluridae	21.4	240.00	1.39E–03	9.41E–03	217	297	
Paddy's Run	3b	Channel Catfish	Ictaluridae	21.4	240.00	5.94E–03	4.02E–03	221		
Paddy's Run	4a	Channel Catfish	Ictaluridae	24.3	482.50	1.39E–03	9.41E–03	217	297	
Paddy's [illegible]	4b	Channel Catfish	Ictaluridae	24.3	[illegible]50	5.94E–03	4.02E–03	221	552	

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Table A.IX-5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]
Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Paddy's Run	5a	Channel Catfish	Ictaluridae	20.2	256.50	4.30E-02	2.91E-02	218	358	
Paddy's Run	5b	Channel Catfish	Ictaluridae	20.2	256.50	8.49E-03	5.75E-03	222	219	
Paddy's Run	6a	Channel Catfish	Ictaluridae	21.9	314.50	4.30E-02	2.91E-02	218	358	lacerated caudal fin
Paddy's Run	6b	Channel Catfish	Ictaluridae	21.9	314.50	8.49E-03	5.75E-03	222	219	lacerated caudal fin
Paddy's Run	10a	Carp	Cyprinidae	22.6	625.50	1.10E-02	7.45E-03	206	386	abrasion on upper lip
Paddy's Run	10b	Carp	Cyprinidae	22.6	625.50	9.45E-03	6.40E-03	207	398	
Paddy's Run	11a	Carp	Cyprinidae	26.8	1135.00	1.53E-02	1.04E-02	219	840	
Paddy's Run	11b	Carp	Cyprinidae	26.8	1135.00	9.35E-03	6.33E-03	220	740	
Paddy's Run	7a	Carp	Cyprinidae	21.1	471.50	9.34E-03	6.32E-03	202	520	
Paddy's Run	7b	Carp	Cyprinidae	21.1	471.50	1.70E-02	1.15E-02	203	653	
Paddy's Run	8a	Carp	Cyprinidae	20.6	488.50	9.34E-03	6.32E-03	202	520	abrasion on lower lip
Paddy's Run	8b	Carp	Cyprinidae	20.6	488.50	1.70E-02	1.15E-02	203	653	abrasion on lower lip
Paddy's Run	9a	Carp	Cyprinidae	25.5	946.50	4.91E-03	3.32E-03	204	448	
Paddy's Run	9b	Carp	Cyprinidae	25.5	946.50	1.20E-02	8.12E-03	205	628	
Paddy's Run	12	Gizzard Shad	Clupeidae	24.5	136.50	1.22E-02	8.26E-03	212	312	
Paddy's Run	13	Gizzard Shad	Clupeidae	24.3	143.58	1.22E-02	8.26E-03	212	312	
Paddy's Run	14	Gizzard Shad	Clupeidae	23.4	188.46	1.22E-02	8.26E-03	212	344	laceration on dorsal region
Paddy's Run	15	Gizzard Shad	Clupeidae	25.1	150.35	1.22E-02	8.26E-03	212	344	
Paddy's Run	16	Golden Redhorse	Catostomidae	7.0	3.90	N/A	N/A	discarded		juvenile
Paddy's Run	17a	River Carpsucker	Catostomidae	23.2	829.00	3.04E-03	2.06E-03	208	592	
Paddy's Run	17b	River Carpsucker	Catostomidae	23.2	829.00	1.21E-01	8.19E-02	209	544	
Paddy's Run	18	Quillback	Catostomidae	35.7	646.00	3.72E-03	2.52E-03	215	418	
Paddy's Run	19	White Bass	Percichthyidae	26.6	236.00	N/A	N/A	returned		
Paddy's Run	20	White Bass	Percichthyidae	26.5	222.00	N/A	N/A	returned		
Paddy's Run	21	White Bass	Percichthyidae	27.5	252.00	N/A	N/A	returned		
Paddy's Run	22	Smallmouth Bass	Centrarchidae	26.5	227.00	N/A	N/A	returned		
Paddy's Run	23	Smallmouth Bass	Centrarchidae	26.5	233.00	N/A	N/A	returned		
Paddy's Run	24	Smallmouth Bass	Centrarchidae	25.5	230.00	N/A	N/A	returned		
Paddy's Run	25	Freshwater Drum	Sciaenidae	23.0	165.77	1.20E-02	8.12E-03	210	312	
Paddy's Run	26	Freshwater Drum	Sciaenidae	22.1	125.79	1.20E-02	8.12E-03	210	312	
Paddy's Run	27	Freshwater Drum	Sciaenidae	22.0	133.88	1.20E-02	8.12E-03	210	312	
Paddy's Run	28	Freshwater Drum	Sciaenidae	25.6	175.78	5.58E-03	3.78E-03	211	324	
Paddy's Run	29	Freshwater Drum	Sciaenidae	23.5	171.76	5.58E-03	3.78E-03	211	324	
Paddy's Run	30	Freshwater Drum	Sciaenidae	23.0	148.80	5.58E-03	3.78E-03	211	324	
Paddy's Run	31	Freshwater Drum	Sciaenidae	29.3	301.59	1.12E-02	7.58E-03	213	278	
Paddy's Run	32	Freshwater Drum	Sciaenidae	19.9	99.94	1.12E-02	7.58E-03	213	278	
Paddy's Run	33	Freshwater Drum	Sciaenidae	24.5	180.82	7.10E-03	4.81E-03	214	353	
Paddy's Run	34	Freshwater Drum	Sciaenidae	23.0	134.95	7.10E-03	4.81E-03	214	353	
Paddy's Run	35	Freshwater Drum	Sciaenidae	24.6	164.51	7.10E-03	4.81E-03	214	353	
Stricker's Grove	1	Channel Catfish	Ictaluridae	24.6	127.33	5.09E-03	3.45E-03	304	472	
Stricker's Grove	2	Channel Catfish	Ictaluridae	24.8	123.11	5.09E-03	3.45E-03	304	472	
Stricker's Grove	3	Channel Catfish	Ictaluridae	23.2	100.30	5.09E-03	3.45E-03	304	472	
Stricker's Grove	4	Channel Catfish	Ictaluridae	37.8	555.00	2.56E-03	1.73E-03	307	351	

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Table A.IX-5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]

Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Stricker's Grove	5a	Channel Catfish	Ictaluridae	22.7	421.50	1.55E-03	1.05E-03	311	300	
Stricker's Grove	5b	Channel Catfish	Ictaluridae	22.7	421.50	1.70E-03	1.15E-03	312	264	
Stricker's Grove	6a	Channel Catfish	Ictaluridae	23.6	541.50	1.18E-03	8.00E-04	319	374	
Stricker's Grove	6b	Channel Catfish	Ictaluridae	23.6	541.50	2.16E-03	1.46E-03	320	329	
Stricker's Grove	7	Channel catfish	Ictaluridae	6.5	1.50	N/A	N/A	discarded		
Stricker's Grove	8	Channel Catfish	Ictaluridae	38.8	451.00	5.09E-03	3.45E-03	304	472	
Stricker's Grove	9	Channel catfish	Ictaluridae	5.3	1.21	N/A	N/A	discarded		
Stricker's Grove	10	Carp	Cyprinidae	40.4	976.00	4.51E-03	3.05E-03	303	517	
Stricker's Grove	11	Spotfin Shiner	Cyprinidae	4.6	0.89	N/A	N/A	discarded		
Stricker's Grove	12	Spotfin Shiner	Cyprinidae	4.7	0.96	N/A	N/A	discarded		
Stricker's Grove	13	Spotfin Shiner	Cyprinidae	3.1	0.26	N/A	N/A	discarded		
Stricker's Grove	14	Spotfin Shiner	Cyprinidae	5.2	1.32	N/A	N/A	discarded		
Stricker's Grove	15	Carp	Cyprinidae	33.7	462.00	7.70E-03	5.21E-03	306	310	
Stricker's Grove	16	Spotfin Shiner	Cyprinidae	6.6	2.72	N/A	N/A	discarded		
Stricker's Grove	18	Gizzard Shad	Clupeidae	22.0	99.12	6.12E-03	4.14E-03	301	310	
Stricker's Grove	19	Gizzard Shad	Clupeidae	19.6	72.06	6.12E-03	4.14E-03	301	310	
Stricker's Grove	20	Gizzard Shad	Clupeidae	10.8	13.26	3.19E-02	2.16E-02	310	235	
Stricker's Grove	21	Gizzard Shad	Clupeidae	23.7	141.81	6.12E-03	4.14E-03	301	310	
Stricker's Grove	22	Gizzard Shad	Clupeidae	22.2	109.79	6.12E-03	4.14E-03	301	310	
Stricker's Grove	23	Gizzard Shad	Clupeidae	21.7	105.49	3.93E-02	2.66E-02	305	316	
Stricker's Grove	24	Gizzard Shad	Clupeidae	17.6	54.79	3.93E-02	2.66E-02	305	316	
Stricker's Grove	25	Skipjack Herring	Clupeidae	16.6	40.08	N/A	N/A	UC collect		
Stricker's Grove	26	Gizzard Shad	Clupeidae	20.0	83.67	3.93E-02	2.66E-02	305	316	
Stricker's Grove	27	Gizzard Shad	Clupeidae	9.9	10.25	3.93E-02	2.66E-02	305	316	
Stricker's Grove	28	Gizzard Shad	Clupeidae	21.2	99.15	3.93E-02	2.66E-02	305	316	
Stricker's Grove	29	Gizzard Shad	Clupeidae	19.2	72.51	3.15E-02	2.13E-02	308	290	
Stricker's Grove	30	Gizzard Shad	Clupeidae	17.3	53.32	3.15E-02	2.13E-02	308	290	
Stricker's Grove	31	Gizzard Shad	Clupeidae	20.0	79.88	3.15E-02	2.13E-02	308	290	
Stricker's Grove	32	Gizzard Shad	Clupeidae	17.8	60.21	3.15E-02	2.13E-02	308	290	
Stricker's Grove	33	Gizzard Shad	Clupeidae	20.9	84.17	3.15E-02	2.13E-02	308	290	
Stricker's Grove	34	Gizzard Shad	Clupeidae	19.9	78.15	3.15E-02	2.13E-02	308	290	
Stricker's Grove	35	Gizzard Shad	Clupeidae	18.9	74.96	3.19E-02	2.16E-02	310	235	
Stricker's Grove	36	Gizzard Shad	Clupeidae	20.0	79.95	3.19E-02	2.16E-02	310	235	
Stricker's Grove	37	Gizzard Shad	Clupeidae	10.3	11.71	3.19E-02	2.16E-02	310	235	
Stricker's Grove	38	Gizzard Shad	Clupeidae	10.7	13.38	3.19E-02	2.16E-02	310	235	
Stricker's Grove	39	Gizzard Shad	Clupeidae	10.9	12.46	3.19E-02	2.16E-02	310	235	
Stricker's Grove	40	Gizzard Shad	Clupeidae	11.0	13.80	3.19E-02	2.16E-02	310	235	
Stricker's Grove	41	Gizzard Shad	Clupeidae	10.3	13.40	3.19E-02	2.16E-02	310	235	top half of caudal fin gone
Stricker's Grove	42	Gizzard Shad	Clupeidae	10.7	12.30	3.19E-02	2.16E-02	310	235	
Stricker's Grove	43	Gizzard Shad	Clupeidae	10.3	11.95	3.19E-02	2.16E-02	310	235	
Stricker's Grove	44	Gizzard Shad	Clupeidae	10.1	10.67	3.19E-02	2.16E-02	310	235	
Stricker's Grove	45	Gizzard Shad	Clupeidae	9.8	10.23	3.19E-02	2.16E-02	310	235	
Stricker's Grove	46	Gizzard Shad	Clupeidae	10.5	[illegible]6	3.19E-02	2.16E-02	310	235	

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Table A.IX-5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]
Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Stricker's Grove	47	Gizzard Shad	Clupeidae	9.8	8.61	3.19E-02	2.16E-02	310	235	
Stricker's Grove	48	Gizzard Shad	Clupeidae	8.0	5.73	3.19E-02	2.16E-02	310	235	
Stricker's Grove	49	Gizzard Shad	Clupeidae	9.6	9.11	3.19E-02	2.16E-02	310	235	
Stricker's Grove	50	Gizzard Shad	Clupeidae	6.7	3.33	3.19E-02	2.16E-02	310	235	
Stricker's Grove	51	Gizzard Shad	Clupeidae	8.9	7.32	3.19E-02	2.16E-02	310	235	
Stricker's Grove	52	Gizzard Shad	Clupeidae	10.5	11.90	3.19E-02	2.16E-02	310	235	
Stricker's Grove	53	Gizzard Shad	Clupeidae	11.4	14.17	3.19E-02	2.16E-02	310	235	
Stricker's Grove	54	Gizzard Shad	Clupeidae	9.2	7.74	3.19E-02	2.16E-02	310	235	
Stricker's Grove	55	Gizzard Shad	Clupeidae	10.1	11.74	3.19E-02	2.16E-02	310	235	
Stricker's Grove	56	Gizzard Shad	Clupeidae	10.8	14.24	3.19E-02	2.16E-02	310	235	
Stricker's Grove	57	Gizzard Shad	Clupeidae	8.6	7.80	3.19E-02	2.16E-02	310	235	
Stricker's Grove	58	Gizzard Shad	Clupeidae	9.6	9.04	3.19E-02	2.16E-02	310	235	
Stricker's Grove	59	Gizzard Shad	Clupeidae	8.4	7.65	3.19E-02	2.16E-02	310	235	
Stricker's Grove	60	Gizzard Shad	Clupeidae	6.4	2.73	3.19E-02	2.16E-02	310	235	
Stricker's Grove	61	Gizzard Shad	Clupeidae	10.3	11.87	3.19E-02	2.16E-02	310	235	
Stricker's Grove	62	Gizzard Shad	Clupeidae	10.9	12.72	3.19E-02	2.16E-02	310	235	
Stricker's Grove	63	Gizzard Shad	Clupeidae	19.4	66.41	2.19E-02	1.48E-02	314	359	part of caudal fin missing
Stricker's Grove	64	Gizzard Shad	Clupeidae	19.7	74.86	2.19E-02	1.48E-02	314	359	
Stricker's Grove	65	Gizzard Shad	Clupeidae	21.7	107.50	2.19E-02	1.48E-02	314	359	
Stricker's Grove	66	Gizzard Shad	Clupeidae	20.0	86.94	2.19E-02	1.48E-02	314	359	
Stricker's Grove	67	Gizzard Shad	Clupeidae	21.1	89.53	2.19E-02	1.48E-02	314	359	
Stricker's Grove	68	Gizzard Shad	Clupeidae	18.8	64.23	2.19E-02	1.48E-02	314	359	
Stricker's Grove	69	Gizzard Shad	Clupeidae	17.7	57.34	2.19E-02	1.48E-02	314	359	
Stricker's Grove	70	Golden Redhorse	Catostomidae	23.3	137.16	3.83E-03	2.59E-03	313	310	
Stricker's Grove	71	Quillback Carpsucker	Catostomidae	28.6	363.22	1.74E-03	1.18E-03	318	460	
Stricker's Grove	72	Golden Redhorse	Catostomidae	21.9	116.99	3.83E-03	2.59E-03	313	310	
Stricker's Grove	73	Golden Redhorse	Catostomidae	24.2	167.73	3.83E-03	2.59E-03	313	310	
Stricker's Grove	74	Highfin Carpsucker	Catostomidae	33.3	510.00	N/A	N/A	UC collect		
Stricker's Grove	75a	Golden Redhorse	Catostomidae	21.7	503.00	4.95E-03	3.35E-03	317	400	
Stricker's Grove	75b	Golden Redhorse	Catostomidae	21.7	503.00	6.14E-03	4.16E-03	321	338	
Stricker's Grove	76	Quillback Carpsucker	Catostomidae	19.8	329.61	1.74E-03	1.18E-03	318	460	
Stricker's Grove	77	Golden Redhorse	Catostomidae	6.7	3.77	N/A	N/A	UC collect		juvenile
Stricker's Grove	78	Golden Redhorse	Catostomidae	7.9	5.29	N/A	N/A	UC collect		juvenile
Stricker's Grove	79	Golden Redhorse	Catostomidae	8.0	5.35	N/A	N/A	UC collect		juvenile
Stricker's Grove	80	Striped Bass	Percichthyidae	27.0	226.00	N/A	N/A	returned		
Stricker's Grove	81	White Bass	Percichthyidae	24.3	160.00	N/A	N/A	returned		irregular lower stripes
Stricker's Grove	82	Striped Bass	Percichthyidae	38.0	744.00	N/A	N/A	returned		
Stricker's Grove	100	Largemouth Bass	Centrarchidae	28.7	300.00	N/A	N/A	returned		
Stricker's Grove	101	Longear Sunfish	Centrarchidae	12.6	46.28	5.77E-03	3.91E-03	315	185	
Stricker's Grove	102	Bluegill	Centrarchidae	10.1	22.51	2.85E-03	1.93E-03	316	179	
Stricker's Grove	103	Smallmouth Bass	Centrarchidae	9.2	11.16	2.85E-03	1.93E-03	316		
Stricker's Grove	83	Smallmouth Bass	Centrarchidae	25.0	182.00	N/A	N/A	returned		
Stricker's Grove	84	Bluegill	Centrarchidae	14.7	71.33	5.77E-03	3.91E-03	315	185	

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Table A.IX-5

Length, Weight, Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Great Miami River Fish Samples[a]
Radiological and Environmental Monitoring 1993

Station	Sample Number[b]	Common Name	Family	Length (cm)	Weight (g)	Uranium (ug/g)	Uranium (pCi/g)	Bag Number	Bag Weight (g)	Remarks
Stricker's Grove	85	Bluegill	Centrarchidae	11.5	33.02	5.77E-03	3.91E-03	315	185	
Stricker's Grove	86	Hybrid Longear/Bluegil	Centrarchidae	11.5	36.72	5.77E-03	3.91E-03	315	185	
Stricker's Grove	87	Immature Sunfish	Centrarchidae	5.7	4.12	2.85E-03	1.93E-03	316	179	
Stricker's Grove	88	Longear Sunfish	Centrarchidae	12.7	42.50	2.85E-03	1.93E-03	316	179	
Stricker's Grove	89	Smallmouth Bass	Centrarchidae	11.3	20.89	2.85E-03	1.93E-03	316	179	
Stricker's Grove	90	Smallmouth Bass	Centrarchidae	22.7	134.00	N/A	N/A	returned		
Stricker's Grove	91	Bluegill	Centrarchidae	11.5	34.28	5.77E-03	3.91E-03	315	185	
Stricker's Grove	92	Immature Sunfish	Centrarchidae	5.8	4.11	2.85E-03	1.93E-03	316	179	
Stricker's Grove	93	Longear Sunfish	Centrarchidae	13.3	56.73	2.85E-03	1.93E-03	316	179	
Stricker's Grove	94	Bluegill	Centrarchidae	9.8	21.41	2.85E-03	1.93E-03	316	179	
Stricker's Grove	95	Immature Sunfish	Centrarchidae	5.7	3.04	2.85E-03	1.93E-03	316	179	
Stricker's Grove	96	Longear Sunfish	Centrarchidae	12.5	57.64	2.85E-03	1.93E-03	316	179	
Stricker's Grove	97	Bluegill	Centrarchidae	9.6	18.46	2.85E-03	1.93E-03	316	179	
Stricker's Grove	98	Longear Sunfish	Centrarchidae	9.9	22.99	2.85E-03	1.93E-03	316	179	
Stricker's Grove	99	Bluegill	Centrarchidae	9.5	17.48	2.85E-03	1.93E-03	316	179	
Stricker's Grove	105	Freshwater Drum	Sciaenidae	12.1	20.25	1.95E-03	1.32E-03	302	242	
Stricker's Grove	106	Freshwater Drum	Sciaenidae	11.3	16.36	1.95E-03	1.32E-03	302	242	
Stricker's Grove	107	Freshwater Drum	Sciaenidae	11.6	18.03	1.95E-03	1.32E-03	302	242	
Stricker's Grove	108	Freshwater Drum	Sciaenidae	12.1	20.33	1.95E-03	1.32E-03	302	242	
Stricker's Grove	109	Freshwater Drum	Sciaenidae	10.3	11.68	1.95E-03	1.32E-03	302	242	
Stricker's Grove	110	Freshwater Drum	Sciaenidae	10.7	13.71	1.95E-03	1.32E-03	302	242	
Stricker's Grove	111	Freshwater Drum	Sciaenidae	20.8	114.21	1.95E-03	1.32E-03	302	242	
Stricker's Grove	112	Freshwater Drum	Sciaenidae	35.9	553.00	2.19E-03	1.48E-03	309	380	
Stricker's Grove	113	Freshwater Drum	Sciaenidae	21.3	116.86	1.95E-03	1.32E-03	302	242	
Stricker's Grove	114	Freshwater Drum	Sciaenidae	11.1	16.96	1.95E-03	1.32E-03	302	242	
Stricker's Grove	115	Freshwater Drum	Sciaenidae	10.0	11.07	1.95E-03	1.32E-03	302	242	
Stricker's Grove	17	Mooneye	Hiodontidae	26.8	219.91	N/A	N/A	UC collect		
Stricker's Grove	104	Sauger	Percidae	42.5	608.00	N/A	N/A	returned		

[a]Data are not validated.
[b]Note: Sample numbers with a number/letter designation were fish samples that were divided and analyzed in different bags. Thus, the lengths and weights of those samples were estimated by dividing their respective measurements by 2.
NA – Not available.

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Table A.IX–6
Summary Statistics for Great Maimi River Fish Samples
Length, Weight and Uranium Concentrations (ug/g), (pCi/g) in Great Miami River Fish Samples*
Radiological and Environmental Monitoring 1993

Station Name	Family	Minimum Length (cm)	Maximum Length (cm)	Average Length (cm)	Minimum Weight (g)	Maximum Weight (g)	Average Weight (g)	Uranium Concentration Minimum (ug/g)	Uranium Concentration Maximum (ug/g)	Uranium Concentration Average (ug/g)	Uranium Specific Activity Minimum (pCi/g)	Uranium Specific Activity Maximum (pCi/g)	Uranium Specific Activity Average (pCi/g)
Hamilton Dam	Ictaluridae	1.92E+01	4.47E+01	2.52E+01	2.47E+02	7.31E+02	4.52E+02	2.60E–03	9.32E–03	5.88E–03	1.76E–03	6.31E–03	3.98E–03
Hamilton Dam	Cyprinidae	2.26E+01	4.91E+01	3.35E+01	6.59E+02	1.65E+03	9.52E+02	4.00E–03	1.39E–02	9.73E–03	2.71E–03	9.41E–03	6.59E–03
Hamilton Dam	Clupeidae	6.70E+00	2.13E+01	9.75E+00	3.18E+00	1.04E+02	1.35E+01	1.96E–02	1.96E–02	1.96E–02	1.33E–02	1.33E–02	1.33E–02
Hamilton Dam	Catostomidae	6.80E+00	3.80E+01	2.17E+01	3.21E+00	6.34E+02	1.83E+02	1.94E–03	1.56E–02	4.97E–03	1.31E–03	1.06E–02	3.37E–03
Hamilton Dam	Percichthyidae	1.20E+01	1.31E+01	1.26E+01	2.00E+01	2.79E+01	2.40E+01	2.99E–03	2.99E–03	2.99E–03	2.02E–03	2.02E–03	2.02E–03
Hamilton Dam	Centrarchidae	8.50E+00	3.18E+01	1.25E+01	1.06E+01	5.06E+02	7.37E+01	1.86E–03	2.99E–03	2.61E–03	1.26E–03	2.02E–03	1.77E–03
Paddy's Run	Ictaluridae	2.02E+01	4.25E+01	2.54E+01	2.40E+02	7.91E+02	3.82E+02	1.39E–03	4.30E–02	1.26E–02	2.48E–03	2.91E–02	1.02E–02
Paddy's Run	Cyprinidae	2.06E+01	2.68E+01	2.33E+01	4.72E+02	1.14E+03	7.33E+02	4.91E–03	1.70E–02	1.15E–02	3.32E–03	1.15E–02	7.77E–03
Paddy's Run	Clupeidae	2.34E+01	2.51E+01	2.43E+01	1.37E+02	1.88E+02	1.55E+02	1.22E–02	1.22E–02	1.22E–02	8.26E–03	8.26E–03	8.26E–03
Paddy's Run	Catostomidae	2.32E+01	3.57E+01	2.74E+01	6.46E+02	8.29E+02	7.68E+02	3.04E–03	1.21E–01	4.26E–02	2.06E–03	8.19E–02	2.88E–02
Paddy's Run	Sciaenidae	1.99E+01	2.93E+01	2.37E+01	9.99E+01	3.02E+02	1.64E+02	5.58E–03	1.20E–02	8.77E–03	3.78E–03	8.12E–03	5.94E–03
Stricker's Grove	Ictaluridae	2.27E+01	3.88E+01	2.69E+01	1.00E+02	5.55E+02	3.65E+02	1.18E–03	5.09E–03	3.28E–03	8.00E–04	3.45E–03	2.22E–03
Stricker's Grove	Cyprinidae	3.37E+01	4.04E+01	3.71E+01	4.62E+02	9.76E+02	7.19E+02	4.51E–03	7.70E–03	6.11E–03	3.05E–03	5.21E–03	4.13E–03
Stricker's Grove	Clupeidae	6.40E+00	2.37E+01	1.44E+01	2.73E+00	1.42E+02	4.29E+01	6.12E–03	3.93E–02	2.92E–02	4.14E–03	2.66E–02	1.98E–02
Stricker's Grove	Catostomidae	1.98E+01	2.86E+01	2.30E+01	1.17E+02	5.03E+02	3.03E+02	1.74E–03	6.14E–03	3.72E–03	1.18E–03	4.16E–03	2.52E–03
Stricker's Grove	Centrarchidae	5.70E+00	1.47E+01	1.04E+01	3.04E+00	7.13E+01	2.91E+01	2.85E–03	5.77E–03	3.66E–03	1.93E–03	3.91E–03	2.48E–03
Stricker's Grove	Sciaenidae	1.00E+01	3.59E+01	1.52E+01	1.11E+01	5.53E+02	8.30E+01	1.95E–03	2.19E–03	1.97E–03	1.32E–03	1.48E–03	1.33E–03
Group Summary:													
Hamilton Dam		6.70E+00	4.91E+01	1.92E+01	3.18E+00	1.65E+03	2.83E+02	1.86E–03	1.96E–02	7.63E–03	1.26E–03	1.33E–02	5.17E–03
Paddy's Run		1.99E+01	4.25E+01	2.48E+01	9.99E+01	1.14E+03	4.40E+02	1.39E–03	1.21E–01	1.75E–02	2.06E–03	8.19E–02	1.22E–02
Stricker's Grove		5.70E+00	4.04E+01	2.12E+01	2.73E+00	9.76E+02	2.57E+02	1.18E–03	3.93E–02	7.99E–03	8.00E–04	2.66E–02	5.41E–03

*Data are not validated.

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Table A.IX-7
Uranium Concentration in Grass and Surface Soil[a]
Radiological and Environmental Monitoring 1993

Sampling Location	Distance from FEMP[b] (km)	Grass Uranium Concentration (pCi/g) dry	Grass Uranium Concentration (ug/g)	Soil UraniumConcentration 0-2" (pCi/g)	Soil UraniumConcentration 0-2" (ug/g)	Soil UraniumConcentration 2-4" (pCi/g)	Soil UraniumConcentration 2-4" (ug/g)
Fenceline:							
1	0.16	0.038	0.056	6.18	9.15	3.05	4.51
2	1.1	0.017	0.025	4.24	6.28	4.13	6.11
3	0.16	0.084	0.124	11.28	16.70	7.23	10.70
4	0.49	0.022	0.032	3.47	5.13	2.76	4.09
5	0.64	0.064	0.095	5.79	8.57	5.46	8.08
6	0.63	0.024	0.035	4.39	6.49	4.35	6.44
7	1.3	0.023	0.034	2.07	3.06	1.83	2.71
Minimum:		0.017	0.025	2.07	3.06	1.83	2.71
Maximum:		0.084	0.124	11.28	16.70	7.23	10.70
Average:		0.039	0.057	5.35	7.91	4.12	6.09
Onsite:							
8	0.15	0.186	0.275	18.31	27.10	11.62	17.20
9	0.10	0.716	1.060	17.64	26.10	6.89	10.20
Minimum:		0.186	0.275	17.64	26.10	6.89	10.20
Maximum:		0.716	1.060	18.31	27.10	11.62	17.20
Average:		0.451	0.668	17.97	26.60	9.26	13.70

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Table A.IX-7
Uranium Concentration in Grass and Surface Soil[a]
Radiological and Environmental Monitoring 1993

Sampling Location	Distance from FEMP[b] (km)	Grass Uranium Concentration (pCi/g) dry	Grass Uranium Concentration (ug/g)	Soil UraniumConcentration 0-2" (pCi/g)	Soil UraniumConcentration 0-2" (ug/g)	Soil UraniumConcentration 2-4" (pCi/g)	Soil UraniumConcentration 2-4" (ug/g)
Offsite:							
10	2.6	0.009	0.014	2.34	3.47	2.89	4.27
11	3.7	0.012	0.018	1.12	1.66	0.95	1.40
12	2.2	0.008	0.012	1.11	1.64	1.07	1.58
14	5.4	0.013	0.019	0.60	0.89	0.53	0.79
15	1.9	0.010	0.014	1.23	1.82	1.22	1.80
17	3.7	0.004	0.006	0.65	0.96	0.67	0.99
18	5.1	0.010	0.015	0.66	0.98	0.68	1.00
19	8.8	0.012	0.018	0.54	0.79	0.52	0.77
20	3.7	0.010	0.016	0.52	0.77	0.51	0.76
21	3.9	0.011	0.017	0.32	0.48	0.41	0.61
22	5.0	0.014	0.020	0.56	0.83	0.50	0.74
23	4.3	0.011	0.016	0.52	0.77	0.62	0.92
24	2.4	0.016	0.024	2.93	4.34	3.30	4.88
25	2.7	0.020	0.029	1.32	1.95	2.10	3.11
28	40			0.44	0.65	0.53	0.78
29	24	0.016	0.024	0.41	0.61	0.40	0.59
30	1.3	0.010	0.014	5.34	7.90	5.03	7.45
31	1.9	0.026	0.039	4.82	7.14	3.55	5.26
33	4.2	0.010	0.015	0.54	0.80	0.60	0.88
35	9.8	0.007	0.010	0.38	0.56	0.34	0.50
36	9.6	0.007	0.011	0.38	0.57	0.31	0.46
37	8.6	0.005	0.007	0.39	0.57	0.35	0.51
Minimum:		0.004	0.006	0.32	0.48	0.31	0.46
Maximum:		0.026	0.039	5.34	7.90	5.03	7.45
Average:		0.011	0.017	1.23	1.82	1.23	1.82
Summary of all Locations:							
Minimum:		0.004	0.006	0.32	0.48	0.31	0.46
Maximum:		0.716	1.060	18.31	27.10	11.62	17.20
Average:		0.046	0.068	3.39	5.02	2.54	3.75

[a]Data are not validated.
[b]The distance was measured from the geographic center of the Fernald Environmental Management Project.

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Table A.VIX-8
Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Produce and Agricultural Soil[a]
Radiological and Environmental Monitoring 1993

Sample Location	Kilometers from FEMP	Date Sampled	Type of Produce	Uranium[b] (ug/g)	Minimum	Maximum	Average	Uranium (pCi/g)[c]	Minimum	Maximum	Average
GROUP A: TOMATOES											
4		08/18/93	Tomato	1.61E-03	1.61E-03	1.61E-03	1.61E-03	1.09E-03	1.09E-03	1.09E-03	1.09E-03
5		08/09/93	Tomato	2.45E-03	2.45E-03	2.45E-03	2.45E-03	1.66E-03	1.66E-03	1.66E-03	1.66E-03
6		08/09/93	Tomato	5.91E-04	5.91E-04	5.91E-04	5.91E-04	3.99E-04	3.99E-04	3.99E-04	3.99E-04
7		08/17/93	Tomato	5.19E-03	5.19E-03	5.19E-03	5.19E-03	3.51E-03	3.51E-03	3.51E-03	3.51E-03
9	1.6	08/11/93	Tomato	2.02E-03	2.02E-03	2.02E-03	2.02E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03
10	4	08/18/93	Tomato	1.50E-03	1.50E-03	1.50E-03	1.50E-03	1.01E-03	1.01E-03	1.01E-03	1.01E-03
11	24	08/13/93	Tomato	1.84E-03	1.84E-03	1.84E-03	1.84E-03	1.24E-03	1.24E-03	1.24E-03	1.24E-03
12	3.6	08/10/93	Tomato	2.93E-03	2.93E-03	2.93E-03	2.93E-03	1.98E-03	1.98E-03	1.98E-03	1.98E-03
13		08/11/93	Tomato	2.43E-03	2.43E-03	2.43E-03	2.43E-03	1.64E-03	1.64E-03	1.64E-03	1.64E-03
15	2.4	08/10/93	Tomato	1.87E-03	1.87E-03	1.87E-03	1.87E-03	1.26E-03	1.26E-03	1.26E-03	1.26E-03
16		08/10/93	Tomato	8.94E-04	8.94E-04	8.94E-04	8.94E-04	6.04E-04	6.04E-04	6.04E-04	6.04E-04
17		08/13/93	Tomato	1.73E-03	1.73E-03	1.73E-03	1.73E-03	1.17E-03	1.17E-03	1.17E-03	1.17E-03
26	2.6	08/18/93	Tomato	2.97E-03	2.97E-03	2.97E-03	2.97E-03	2.01E-03	2.01E-03	2.01E-03	2.01E-03
28	6.2	08/10/93	Tomato	1.35E-03	1.35E-03	1.35E-03	1.35E-03	9.12E-04	9.12E-04	9.12E-04	9.12E-04
30	2.6	08/20/93	Tomato	2.82E-03	2.82E-03	2.82E-03	2.82E-03	1.91E-03	1.91E-03	1.91E-03	1.91E-03
31		08/26/93	Tomato		NOT SENT TO ORAS				NOT SENT TO ORAS		
Group Summary:					5.91E-04	5.19E-03	2.15E-03		3.99E-04	3.51E-03	1.45E-03
GROUP B: CORN											
4	1.9	08/18/93	Corn	1.16E-03	1.16E-03	1.16E-03	1.16E-03	7.84E-04	7.84E-04	7.84E-04	7.84E-04
5		08/09/93	Corn	2.23E-03	2.23E-03	2.23E-03	2.23E-03	1.51E-03	1.51E-03	1.51E-03	1.51E-03
6		08/09/93	Corn	2.02E-03	2.02E-03	2.02E-03	2.02E-03	1.36E-03	1.36E-03	1.36E-03	1.36E-03
7		08/17/93	Corn	2.84E-04	2.84E-04	2.84E-04	2.84E-04	1.92E-04	1.92E-04	1.92E-04	1.92E-04
13	3.8	08/11/93	Corn	4.70E-04	4.70E-04	4.70E-04	4.70E-04	3.18E-04	3.18E-04	3.18E-04	3.18E-04
14	1.6	09/29/93	Corn	1.85E-04	1.85E-04	1.85E-04	1.85E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04
17		08/13/93	Corn	9.45E-05	9.45E-05	9.45E-05	9.45E-05	6.39E-05	6.39E-05	6.39E-05	6.39E-05
18		09/29/93	Corn	1.28E-04	1.28E-04	3.12E-04	2.20E-04	8.65E-05	8.65E-05	2.11E-04	1.49E-04
18	1.9	09/29/93	Corn	3.12E-04				2.11E-04			
19	1.4	09/29/93	Corn	1.28E-04	1.28E-04	1.28E-04	1.28E-04	8.65E-05	8.65E-05	8.65E-05	8.65E-05
21		10/04/93	Corn	1.72E-04	1.72E-04	1.72E-04	1.72E-04	1.16E-04	1.16E-04	1.16E-04	1.16E-04
23	1.6	09/30/93	Corn	4.67E-05	4.67E-05	4.67E-05	4.67E-05	3.16E-05	3.16E-05	3.16E-05	3.16E-05
28		08/10/93	Corn	1.70E-03	1.70E-03	1.70E-03	1.70E-03	1.15E-03	1.15E-03	1.15E-03	1.15E-03
Group Summary:					4.67E-05	2.23E-03	6.87E-04		3.16E-05	1.51E-03	4.64E-04

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Table A.VIX-8
Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Produce and Agricultural Soil[a]
Radiological and Environmental Monitoring 1993

Sample Location	Kilometers from FEMP	Date Sampled	Type of Produce	Uranium[b] (ug/g)	Minimum	Maximum	Average	Uranium (pCi/g)[c]	Minimum	Maximum	Average
GROUP C: BEETS, ONIONS AND POTATOES											
7		08/17/93	Potato	4.32E-03	4.32E-03	4.32E-03	4.32E-03	2.92E-03	2.92E-03	2.92E-03	2.92E-03
12		08/10/93	Potato	5.48E-03	5.48E-03	5.48E-03	5.48E-03	3.70E-03	3.70E-03	3.70E-03	3.70E-03
15		08/10/93	Potato	9.01E-03	9.01E-03	9.01E-03	9.01E-03	6.09E-03	6.09E-03	6.09E-03	6.09E-03
17		08/13/93	Potato	3.26E-03	3.26E-03	3.26E-03	3.26E-03	2.20E-03	2.20E-03	2.20E-03	2.20E-03
17		08/13/93	Onions	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03
31		08/26/93	Potato		NOT SENT TO ORAS				NOT SENT TO ORAS		
31		08/26/93	Beet		NOT SENT TO ORAS				NOT SENT TO ORAS		
Group Summary:					1.55E-03	9.01E-03	4.72E-03		1.05E-03	6.09E-03	3.19E-03
GROUP D: PEPPERS											
4		08/18/93	Green Pepper	6.88E-03	6.88E-03	6.88E-03	6.88E-03	4.65E-03	4.65E-03	4.65E-03	4.65E-03
4		08/18/93	Red Pepper	1.57E-03	1.57E-03	1.57E-03	1.57E-03	1.06E-03	1.06E-03	1.06E-03	1.06E-03
5		08/09/93	Banana Pepper	1.22E-03	1.22E-03	1.22E-03	1.22E-03	8.24E-04	8.24E-04	8.24E-04	8.24E-04
5		08/09/93	Bell Pepper	1.60E-03	1.60E-03	1.60E-03	1.60E-03	1.08E-03	1.08E-03	1.08E-03	1.08E-03
11		08/13/93	Green Pepper	1.88E-03	1.88E-03	1.88E-03	1.88E-03	1.27E-03	1.27E-03	1.27E-03	1.27E-03
12		08/10/93	Bell Pepper	1.15E-03	1.15E-03	1.15E-03	1.15E-03	7.77E-04	7.77E-04	7.77E-04	7.77E-04
16	30	08/10/93	Bell Pepper	5.20E-04	5.20E-04	5.20E-04	5.20E-04	3.51E-04	3.51E-04	3.51E-04	3.51E-04
30		08/20/93	Green Pepper	7.29E-03	7.29E-03	7.29E-03	7.29E-03	4.93E-03	4.93E-03	4.93E-03	4.93E-03
Group Summary:					5.20E-04	7.29E-03	2.76E-03		3.51E-04	4.93E-03	1.87E-03
GROUP E: APPLES											
9		08/11/93	Apple	5.03E-04	5.03E-04	5.03E-04	5.03E-04	3.40E-04	3.40E-04	3.40E-04	3.40E-04
10		08/18/93	Apple	5.21E-04	5.21E-04	5.21E-04	5.21E-04	3.52E-04	3.52E-04	3.52E-04	3.52E-04
11		08/13/93	Apple	1.25E-03	1.25E-03	1.25E-03	1.25E-03	8.45E-04	8.45E-04	8.45E-04	8.45E-04
13		08/11/93	Apple	2.98E-04	2.98E-04	2.98E-04	2.98E-04	2.01E-04	2.01E-04	2.01E-04	2.01E-04
17		08/13/93	Apple	4.86E-04	4.86E-04	4.86E-04	4.86E-04	3.28E-04	3.28E-04	3.28E-04	3.28E-04
30		08/20/93	Apple	2.16E-03	2.16E-03	2.16E-03	2.16E-03	1.46E-03	1.46E-03	1.46E-03	1.46E-03
Group Summary:					2.98E-04	2.16E-03	8.70E-04		2.01E-04	1.46E-03	5.88E-04

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Table A.VIX-8
Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Produce and Agricultural Soil[a]
Radiological and Environmental Monitoring 1993

Sample Location	Kilometers from FEMP	Date Sampled	Type of Produce	Uranium[b] (ug/g)	Minimum	Maximum	Average	Uranium (pCi/g)[c]	Minimum	Maximum	Average
GROUP F: SOYBEANS											
18		09/29/93	Soybeans	8.41E-04	8.41E-04	1.38E-03	1.11E-03	5.68E-04	5.68E-04	9.32E-04	7.50E-04
18		09/29/93	Soybeans	1.38E-03				9.32E-04			
20	2.1	09/29/93	Soybeans	2.48E-04	2.48E-04	2.48E-04	2.48E-04	1.68E-04	1.68E-04	1.68E-04	1.68E-04
21	2.4	10/04/93	Soybeans	3.70E-03	3.70E-03	3.70E-03	3.70E-03	2.50E-03	2.50E-03	2.50E-03	2.50E-03
23		09/30/93	Soybeans	6.59E-04	6.59E-04	6.59E-04	6.59E-04	4.45E-04	4.45E-04	4.45E-04	4.45E-04
24	1.6	09/29/93	Soybeans	4.45E-04	4.45E-04	4.45E-04	4.45E-04	3.01E-04	3.01E-04	3.01E-04	3.01E-04
Group Summary:					2.48E-04	3.70E-03	1.21E-03		1.68E-04	2.50E-03	8.19E-04
GROUP G: GREEN BEANS, CABBAGE, CUCUMBER, EGGPLANT AND SQUASH											
4		08/18/93	Cucumber	7.93E-03	7.93E-03	7.93E-03	7.93E-03	5.36E-03	5.36E-03	5.36E-03	5.36E-03
4		08/18/93	Eggplant	1.39E-03	1.39E-03	1.39E-03	1.39E-03	9.39E-04	9.39E-04	9.39E-04	9.39E-04
4		08/18/93	Squash	9.61E-03	7.77E-03	9.61E-03	8.69E-03	6.49E-03	5.25E-03	6.49E-03	5.87E-03
4		08/18/93	Squash	7.77E-03				5.25E-03			
5	2.9	08/09/93	Cabbage	1.06E-02	1.06E-02	1.06E-02	1.06E-02	7.16E-03	7.16E-03	7.16E-03	7.16E-03
5		08/09/93	Eggplant	9.48E-04	9.48E-04	9.48E-04	9.48E-04	6.41E-04	6.41E-04	6.41E-04	6.41E-04
6		08/09/93	Beans		NOT SENT TO ORAS				NOT SENT TO ORAS		
6	2	08/09/93	Green Beans	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.14E-02	1.14E-02	1.14E-02	1.14E-02
7		08/17/93	Squash	5.32E-04	3.93E-04	5.32E-04	4.63E-04	3.59E-04	2.66E-04	3.59E-04	3.13E-04
7	4.9	08/17/93	Squash	3.93E-04				2.66E-04			
10		08/18/93	Squash	2.76E-02	2.76E-02	2.76E-02	2.76E-02	1.86E-02	1.86E-02	1.86E-02	1.86E-02
15		08/10/93	Squash	2.13E-03	2.13E-03	2.51E-03	2.32E-03	1.44E-03	1.44E-03	1.70E-03	1.57E-03
15		08/10/93	Squash	2.51E-03				1.70E-03			
17	16	08/13/93	Beans	1.55E-03	1.55E-03	1.55E-03	1.55E-03	1.05E-03	1.05E-03	1.05E-03	1.05E-03
17		08/13/93	Cucumber	3.91E-04	3.91E-04	3.91E-04	3.91E-04	2.64E-04	2.64E-04	2.64E-04	2.64E-04
30		08/20/93	Cucumber	2.50E-03	2.50E-03	2.50E-03	2.50E-03	1.69E-03	1.69E-03	1.69E-03	1.69E-03
31		08/26/93	Cucumber		NOT SENT TO ORAS				NOT SENT TO ORAS		
Group Summary:					3.91E-04	2.76E-02	6.18E-03		2.64E-04	1.86E-02	4.18E-03

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Table A.VIX-8
Uranium Concentrations (ug/g) and Specific Activity (pCi/g) in Produce and Agricultural Soil[a]
Radiological and Environmental Monitoring 1993

Sample Location	Kilometers from FEMP	Date Sampled	Type of Produce	Uranium[b] (ug/g)	Minimum	Maximum	Average	Uranium (pCi/g)[c]	Minimum	Maximum	Average
GROUP H: SOIL											
4		08/18/93	Soil	1.78E+00	1.78E+00	1.78E+00	1.78E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
5		08/09/93	Soil	1.36E+00	1.36E+00	1.36E+00	1.36E+00	9.19E-01	9.19E-01	9.19E-01	9.19E-01
6		08/09/93	Soil	1.84E+00	1.84E+00	1.84E+00	1.84E+00	1.24E+00	1.24E+00	1.24E+00	1.24E+00
7		08/17/93	Soil	1.01E+00	1.01E+00	1.01E+00	1.01E+00	6.82E-01	6.82E-01	6.82E-01	6.82E-01
9		08/11/93	Soil	1.56E+00	1.56E+00	1.56E+00	1.56E+00	1.05E+00	1.05E+00	1.05E+00	1.05E+00
10		08/18/93	Soil	1.23E+00	1.23E+00	1.23E+00	1.23E+00	8.31E-01	8.31E-01	8.31E-01	8.31E-01
11		08/13/93	Soil	8.78E-01	8.78E-01	8.78E-01	8.78E-01	5.93E-01	5.93E-01	5.93E-01	5.93E-01
12		08/10/93	Soil	1.77E+00	1.77E+00	1.77E+00	1.77E+00	1.20E+00	1.20E+00	1.20E+00	1.20E+00
13		08/11/93	Soil	1.10E+00	1.10E+00	1.10E+00	1.10E+00	7.43E-01	7.43E-01	7.43E-01	7.43E-01
14		09/29/93	Soil (Corn)	2.97E+00	2.97E+00	2.97E+00	2.97E+00	2.01E+00	2.01E+00	2.01E+00	2.01E+00
15		08/10/93	Soil	2.67E+00	2.67E+00	2.67E+00	2.67E+00	1.80E+00	1.80E+00	1.80E+00	1.80E+00
16		08/10/93	Soil	8.29E-01	8.29E-01	8.29E-01	8.29E-01	5.60E-01	5.60E-01	5.60E-01	5.60E-01
17		08/13/93	Soil	7.68E-01	7.68E-01	7.68E-01	7.68E-01	5.19E-01	5.19E-01	5.19E-01	5.19E-01
18		09/29/93	Soil (Corn)	1.45E+00	1.29E+00	1.45E+00	1.37E+00	9.80E-01	8.72E-01	9.80E-01	9.26E-01
18		09/29/93	Soil (Corn)	1.29E+00				8.72E-01			
18		09/29/93	Soil (Soybean)	2.01E+00	8.53E-01	2.01E+00	1.43E+00	1.36E+00	5.76E-01	1.36E+00	9.67E-01
18		09/29/93	Soil (Soybean)	8.53E-01				5.76E-01			
19		09/29/93	Soil (Corn)	1.47E+00	1.47E+00	1.47E+00	1.47E+00	9.93E-01	9.93E-01	9.93E-01	9.93E-01
20		09/29/93	Soil (Soybean)	2.19E+00	2.19E+00	2.19E+00	2.19E+00	1.48E+00	1.48E+00	1.48E+00	1.48E+00
21		10/04/93	Soil (Corn)	1.21E+00	1.21E+00	1.21E+00	1.21E+00	8.18E-01	8.18E-01	8.18E-01	8.18E-01
21		10/04/93	Soil (Soybean)	5.75E-01	5.75E-01	5.75E-01	5.75E-01	3.89E-01	3.89E-01	3.89E-01	3.89E-01
23		09/30/93	Soil (Corn)	1.53E+00	1.53E+00	1.53E+00	1.53E+00	1.03E+00	1.03E+00	1.03E+00	1.03E+00
23		09/30/93	Soil (Soybean)	1.82E+00	1.82E+00	1.82E+00	1.82E+00	1.23E+00	1.23E+00	1.23E+00	1.23E+00
24		09/29/93	Soil (Soybean)	2.22E+00	2.22E+00	2.22E+00	2.22E+00	1.50E+00	1.50E+00	1.50E+00	1.50E+00
26		08/18/93	Soil	8.70E-01	8.70E-01	8.70E-01	8.70E-01	5.88E-01	5.88E-01	5.88E-01	5.88E-01
28		08/10/93	Soil	8.95E-01	8.95E-01	8.95E-01	8.95E-01	6.05E-01	6.05E-01	6.05E-01	6.05E-01
30		08/20/93	Soil	9.43E-01	9.43E-01	9.43E-01	9.43E-01	6.37E-01	6.37E-01	6.37E-01	6.37E-01
Group Summary:					5.75E-01	2.97E+00	1.45E+00		3.89E-01	2.01E+00	9.78E-01

[a]Data are not validated.
[b]Uranium is measured by dry weight.
[c]A conversion constant of 0.6757 for natural uranium was used for calculations.

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Table A.IX–9
Maximum Daily Average Edited Radon Concentrations By Real–Time Pylon Measurement System
Radiological and Environmental Monitoring 1993[a]

Month	AMS #1 (pCi/L) Pylon #963	AMS #5 (pCi/L) Pylon #711	AMS #6 (pCi/L) Pylon #704	AMS #7 (pCi/L) Pylon #719	Plant 2/3 (pCi/L) Pylon #920	Plant 5 (pCi/L) Pylon #954	Pilot Plant (pCi/L) Pylon #712	Admin Bldg (pCi/L) Pylon #716
January	0.73	0.71	0.71	0.78	0.83	0.78	1.35	0.97
February	0.80	1.50	1.20	1.60	1.60	1.60	1.60	1.00
March	0.50	0.80	0.50	1.30	1.10	1.20	0.90	0.80
April	0.60	1.40	0.70	1.20	1.30	1.30	0.80	0.60
May	0.80	1.20	0.90	1.40	1.00	1.00	0.80	0.80
June	4.60	1.20	1.00	1.10	1.00	1.00	0.80	0.70
July	1.10	1.60	1.40	1.80	1.10	1.10	1.10	0.90
August	1.30	1.90	1.70	1.90	1.40	1.30	1.30	1.10
September	1.44	1.66	1.39	1.69	1.30	1.17	1.07	0.95
October	2.50	2.50	1.90	2.60	2.00	1.80	1.90	1.60
November	2.40	1.87	N/A	2.20	1.60	1.80	1.80	1.50
December	1.10	0.90	1.00	1.60	1.20	1.00	0.90	0.80
Average	1.49	1.44	1.07	1.60	1.29	1.25	1.19	0.98

Month	Invivo Bldg (pCi/L) Pylon #685	K65–NW (pCi/L) Pylon #962	K65–SW (pCi/L) Pylon #720	K65–NE (pCi/L) Pylon #964	K65–SE (pCi/L) Pylon #953	Met Tower (pCi/L) Pylon #955	Bkgd (pCi/L) Pylon #945	WP 17 (pCi/L) Pylon #957
January	0.81	3.99	3.29	7.93	5.56	0.97	0.57	N/A
February	2.50	6.80	4.50	8.80	12.70	1.40	1.30	1.90
March	1.20	2.80	4.30	7.90	14.80	3.40	0.70	0.70
April	1.00	2.60	2.30	4.90	3.60	1.00	N/A	0.90
May	1.10	2.00	2.30	3.40	2.30	1.30	1.20	1.10
June	1.00	1.90	2.20	6.30	12.00	1.50	1.10	1.10
July	1.20	4.90	2.20	6.30	2.50	1.50	0.60	1.40
August	1.30	2.70	2.60	7.80	2.90	1.80	1.10	1.60
September	1.18	2.89	2.89	5.15	3.01	1.50	1.00	1.42
October	1.90	3.50	3.60	12.00	5.60	N/A	N/A	2.50
November	1.60	N/A	2.80	14.60	5.40	N/A	2.10	2.40
December	0.90	4.10	4.30	12.00	6.00	1.80	1.80	1.20
Average	1.31	3.75	3.11	8.09	6.36	1.70	1.27	1.47

[a]Data are [illegible]alidated.

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TABLE A.IX–10
RADON CONCENTRATIONS BY ALPHA–TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1–4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
1	AMS–01	0.70	0.70
2	AMS–01	0.20	0.60
3	AMS–01A	1.00	1.00
4	AMS–01A	1.20	1.30
1	AMS–02	0.70	0.80
2	AMS–02	0.30	0.40
3	AMS–02	0.70	1.40
4	AMS–02	1.60	1.60
1	AMS–04	0.07	0.90
2	AMS–04	0.30	0.30
3	AMS–04	0.80	1.10
4	AMS–04	2.30	2.30
1	AMS–06	0.80	0.80
2	AMS–06	0.10	0.30
3	AMS–06	0.90	1.10
4	AMS–06	2.80	2.80
1	AMS–07	0.30	0.90
2	AMS–07	0.40	0.40
3	AMS–07	0.90	1.20
4	AMS–07	1.20	1.60
1	AMS–08	0.07	0.90
2	AMS–08	0.10	0.40
3	AMS–08	1.00	1.00
4	AMS–08	1.10	1.30
1	AMS–09	0.60	0.90
2	AMS–09	0.20	0.60
3	AMS–09	0.90	1.40
4	AMS–09	1.70	1.70
1	AMS–10	0.30	0.70
2	AMS–10	0.10	0.20
3	AMS–10	1.00	1.00
4	AMS–10	1.30	1.50
1	AMS–11	0.30	0.90
2	AMS–11	0.30	0.30
3	AMS–11	1.10	1.10
4	AMS–11	1.40	1.60
1	AMS–12	0.70	0.70
2	AMS–12	0.10	0.10
3	AMS–12	0.90	1.20
4	AMS–12	0.80	1.10
1	AMS–13	0.10	0.80
2	AMS–13	0.10	0.40
3	AMS–13	0.40	0.80
4	AMS–13	1.40	1.40
1	AMS–15	3.60	3.60
2	AMS–15	0.70	0.40

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TABLE A.IX-10
RADON CONCENTRATIONS BY ALPHA-TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1-4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
3	AMS-15	0.60	1.60
4	AMS-15	1.20	1.70
1	AMS-16	0.60	0.60
2	AMS-16	0.20	0.40
3	AMS-16	0.50	1.40
4	AMS-16	1.50	2.00
1	BKGD	0.20	1.90
2	BKGD	0.10	0.50
3	BKGD	0.30	1.00
4	BKGD	0.80	1.30
1	BKGD-01	3.00	3.20
2	BKGD-01	0.30	0.60
3	BKGD-01	1.10	1.30
4	BKGD-01	1.70	2.30
1	BKGD-02	3.40	3.40
2	BKGD-02	0.20	0.50
3	BKGD-02	1.10	1.40
4	BKGD-02	2.20	2.20
1	BLDG-64	4.00	6.70
2	BLDG-64	7.70	7.70
3	BLDG-64	2.30	5.90
4	BLDG-64	5.20	5.20
1	BLDG-65	134.20	134.20
2	BLDG-65	158.10	160.40
3	BLDG-65	153.60	153.60
4	BLDG-65	109.70	125.80
3	BLDG-65-O1	2.70	4.40
4	BLDG-65-O1	4.60	7.70
3	BLDG-65-O2	2.10	2.10
4	BLDG-65-O2	3.40	6.50
3	BLDG-65-O3	1.50	1.50
4	BLDG-65-O3	6.50	7.60
3	BLDG-65-O4	1.90	2.10
4	BLDG-65-O4	4.10	4.10
1	BLDG-67	33.70	33.70
2	BLDG-67	4.90	88.00
3	BLDG-67	101.10	121.90
4	BLDG-67	3.60	78.50
1	BLDG-68	3.80	4.50
2	BLDG-68	4.30	5.70
3	BLDG-68	1.70	5.10
4	BLDG-68	1.50	3.20
1	FEMP-A	2.60	2.80
2	FEMP-A	0.40	0.40
3	FEMP-A	1.00	1.10
4	FEMP-A	1.50	1.50

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TABLE A.IX-10
RADON CONCENTRATIONS BY ALPHA-TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1-4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
1	FEMP-B	2.80	2.80
2	FEMP-B	0.20	0.40
3	FEMP-B	0.70	1.20
4	FEMP-B	1.40	1.40
1	FEMP-C	0.70	0.70
2	FEMP-C	0.30	0.30
3	FEMP-C	0.40	1.10
4	FEMP-C	1.10	1.10
1	FEMP-D	0.80	0.80
2	FEMP-D	0.40	0.50
3	FEMP-D	0.70	1.40
4	FEMP-D	1.00	2.30
1	FEMP-E	0.90	0.90
2	FEMP-E	0.40	0.40
3	FEMP-E	0.60	1.30
4	FEMP-E	1.50	1.50
1	FEMP-F	0.60	0.60
2	FEMP-F	0.20	0.50
3	FEMP-F	1.70	1.70
4	FEMP-F	1.20	1.20
1	FEMP-G	1.60	1.60
2	FEMP-G	0.20	0.40
3	FEMP-G	0.90	0.90
4	FEMP-G	1.50	1.50
1	FEMP-H	2.10	2.10
2	FEMP-H	0.40	0.40
3	FEMP-H	0.60	1.00
4	FEMP-H	1.20	1.40
1	FEMP-I	1.50	1.90
2	FEMP-I	0.40	0.40
3	FEMP-I	0.60	1.00
4	FEMP-I	1.10	1.70
1	FEMP-J	0.80	1.00
2	FEMP-J	0.20	0.40
3	FEMP-J	0.90	0.90
4	FEMP-J	0.90	1.60
1	FEMP-K	1.50	1.50
2	FEMP-K	0.40	0.40
3	FEMP-K	0.80	1.10
4	FEMP-K	1.50	2.00
1	FEMP-L	0.40	0.70
2	FEMP-L	0.50	0.60
3	FEMP-L	1.00	1.30
4	FEMP-L	1.70	1.70
1	FEMP-M	0.60	1.60
2	FEMP-M	0.30	0.40

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TABLE A.IX–10
RADON CONCENTRATIONS BY ALPHA–TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1–4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
3	FEMP–M	1.20	1.20
1	FEMP–N	1.60	2.00
2	FEMP–N	0.40	0.40
3	FEMP–N	0.90	1.50
4	FEMP–N	1.40	1.40
1	FEMP–O	1.50	3.40
2	FEMP–O	0.30	0.40
3	FEMP–O	1.10	1.60
4	FEMP–O	1.30	1.30
1	FEMP–P	3.20	3.20
2	FEMP–P	0.60	0.70
3	FEMP–P	1.20	1.30
4	FEMP–P	1.70	2.00
1	FEMP–Q	18.50	29.40
2	FEMP–Q	0.10	0.30
3	FEMP–Q	0.50	0.50
4	FEMP–Q	0.80	1.20
1	K–65–A	0.70	0.90
2	K–65–A	0.50	0.70
3	K–65–A	1.50	1.60
4	K–65–A	2.00	2.80
1	K–65–B	0.50	1.20
2	K–65–B	2.60	2.60
3	K–65–B	1.50	1.70
4	K–65–B	2.00	2.70
1	K–65–C	0.50	1.00
2	K–65–C	0.80	1.10
3	K–65–C	1.70	1.90
4	K–65–C	2.60	2.90
1	K–65–D	1.80	1.80
2	K–65–D	1.00	1.30
3	K–65–D	1.50	1.90
4	K–65–D	3.10	3.50
1	K–65–E	1.20	2.70
2	K–65–E	3.60	3.60
3	K–65–E	1.40	1.40
4	K–65–E	2.00	2.70
1	K–65–F	1.30	1.40
2	K–65–F	1.40	1.40
3	K–65–F	1.00	1.40
4	K–65–F	2.30	3.00
1	K–65–G	0.90	0.90
2	K–65–G	0.60	2.50
3	K–65–G	0.60	1.40
4	K–65–G	2.90	2.90
1	K–65–H	0.30	1.30

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TABLE A.IX–10
RADON CONCENTRATIONS BY ALPHA–TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1–4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
2	K–65–H	0.30	0.70
3	K–65–H	0.70	1.10
4	K–65–H	2.20	2.60
1	K–65–I	1.40	1.40
2	K–65–I	0.30	0.80
3	K–65–I	1.40	1.40
4	K–65–I	2.40	2.40
1	K–65–J	1.20	1.40
2	K–65–J	0.90	0.90
3	K–65–J	1.20	1.30
4	K–65–J	2.30	2.30
1	K–65–K	0.30	0.60
2	K–65–K	0.40	0.90
3	K–65–K	1.10	1.40
4	K–65–K	3.10	3.20
1	K–65–L	0.80	0.80
2	K–65–L	2.40	3.40
3	K–65–L	1.10	2.00
4	K–65–L	2.80	3.10
1	K–65–M	0.80	1.20
2	K–65–M	1.00	1.10
3	K–65–M	1.80	1.80
4	K–65–M	1.90	2.90
1	K–65–N	0.50	0.90
2	K–65–N	1.00	1.00
3	K–65–N	2.20	5.60
4	K–65–N	1.80	4.60
1	K–65–O	0.90	0.90
2	K–65–O	0.40	0.70
3	K–65–O	0.80	4.40
4	K–65–O	1.80	2.50
1	K–65–P	1.00	1.00
2	K–65–P	1.90	1.90
3	K–65–P	1.40	1.40
4	K–65–P	2.20	2.30
1	N–SILO–NE	4.50	5.30
2	N–SILO–NE	3.90	3.90
3	N–SILO–NE	5.70	5.80
4	N–SILO–NE	9.20	9.40
1	N–SILO–NW	1.40	1.50
2	N–SILO–NW	0.00	0.00
3	N–SILO–NW	8.40	8.40
4	N–SILO–NW	5.30	5.30
1	N–SILO–SE	5.40	5.40
2	N–SILO–SE	3.40	3.40
3	N–SILO–SE	5.30	5.50

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TABLE A.IX–10
RADON CONCENTRATIONS BY ALPHA–TRACK MEASUREMENT SYSTEM[a]
QUARTERS 1–4, RADIOLOGICAL AND ENVIRONMENTAL MONITORING 1993

Quarter	Location	Average Radon Concentration (pCi/L)	Maximum Radon Concentration (pCi/L)
4	N–SILO–SE	6.90	8.30
1	N–SILO–SW	4.40	4.40
2	N–SILO–SW	1.90	1.90
3	N–SILO–SW	3.00	4.00
4	N–SILO–SW	7.30	7.30
1	PERM–07	0.07	2.40
2	PERM–07	0.80	0.80
3	PERM–07	0.70	1.50
4	PERM–07	2.10	2.10
1	PERM–09	0.20	0.70
2	PERM–09	0.30	0.30
3	PERM–09	1.10	1.30
4	PERM–09	1.40	1.60
1	RES–01	2.60	2.60
2	RES–01	0.30	0.30
3	RES–01	1.50	1.50
4	RES–01	1.00	1.50
1	RES–02	2.80	2.80
2	RES–02	0.50	0.50
3	RES–02	1.40	1.40
4	RES–02	1.50	1.50
1	RES–03	2.30	2.60
2	RES–03	0.60	0.60
3	RES–03	1.30	1.30
4	RES–03	1.80	1.80
1	S–SILO–NE	1.40	1.40
2	S–SILO–NE	4.90	4.90
3	S–SILO–NE	6.10	6.10
4	S–SILO–NE	4.00	4.40
1	S–SILO–NW	1.10	2.00
2	S–SILO–NW	1.40	1.60
3	S–SILO–NW	2.00	2.00
4	S–SILO–NW	2.70	3.00
1	S–SILO–SE	1.60	1.80
2	S–SILO–SE	0.50	0.60
3	S–SILO–SE	1.30	1.40
4	S–SILO–SE	3.20	3.20
1	S–SILO–SW	1.90	1.90
2	S–SILO–SW	0.60	0.70
3	S–SILO–SW	1.20	1.50
4	S–SILO–SW	2.60	2.60

[a]The data are not validated.

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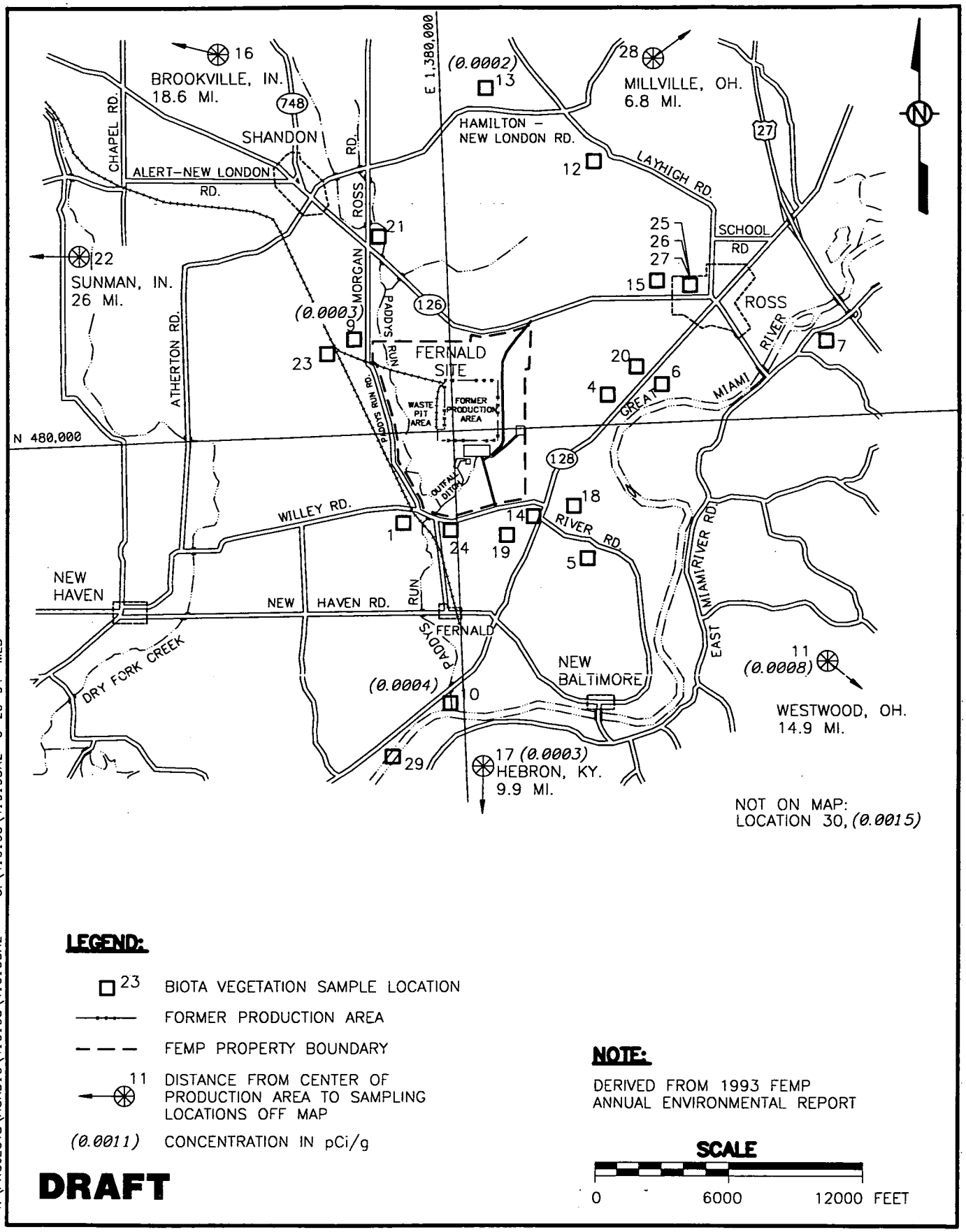

419195-A2 (OU5 RI) (PGH)
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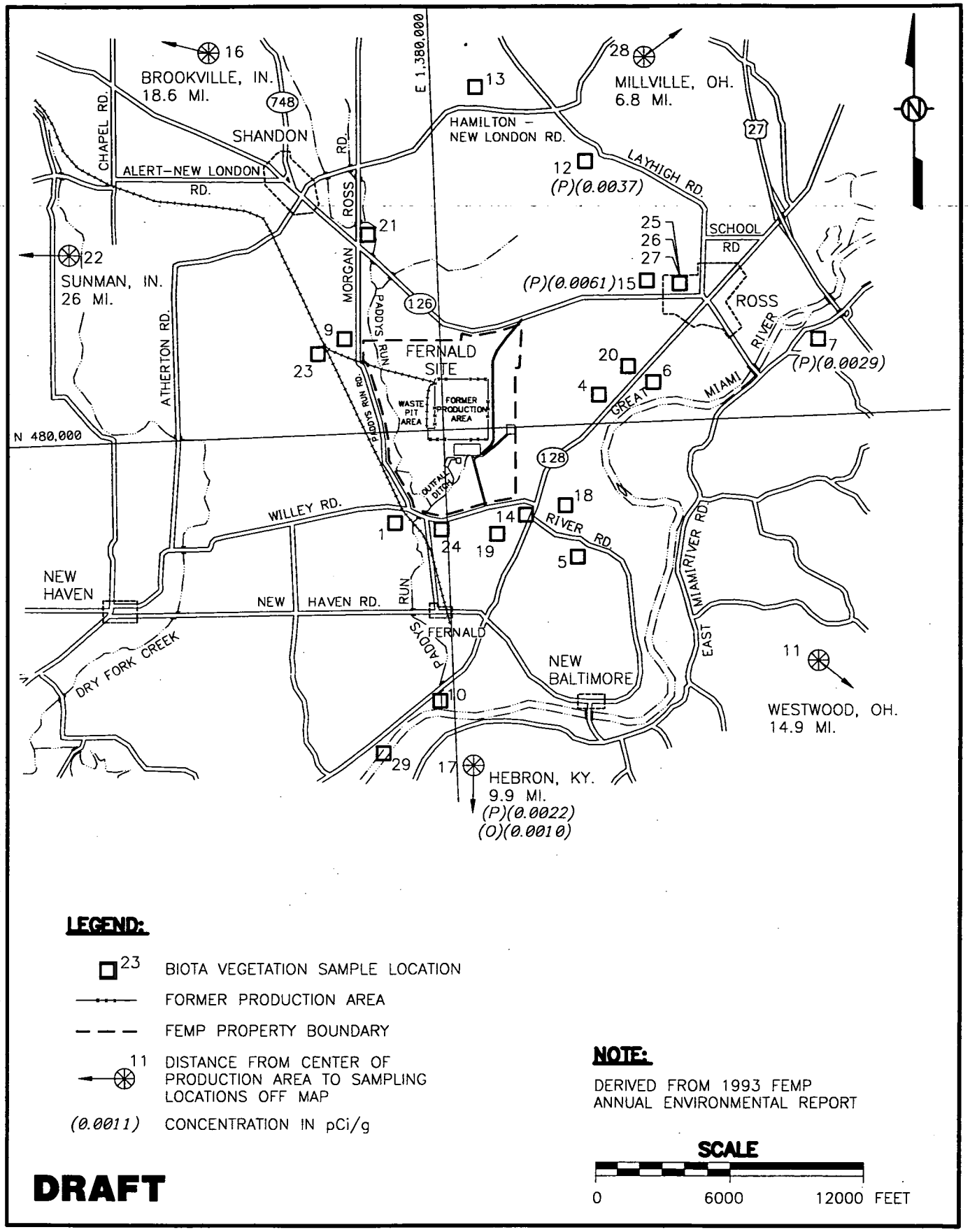
FIGURE A.IX-1. URANIUM IN APPLES (pCi/g), 1993



LEGEND:

- 23 BIOTA VEGETATION SAMPLE LOCATION
- FORMER PRODUCTION AREA
- FEMP PROPERTY BOUNDARY
- 11 DISTANCE FROM CENTER OF PRODUCTION AREA TO SAMPLING LOCATIONS OFF MAP
- (0.0011) CONCENTRATION IN pCi/g

NOTE:

DERIVED FROM 1993 FEMP ANNUAL ENVIRONMENTAL REPORT

SCALE

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419195-A3 (OU5 RI) (PGH)
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FIGURE A.IX-2. URANIUM IN ROOT CROPS: POTATOES AND ONIONS (pCi/g), 1993

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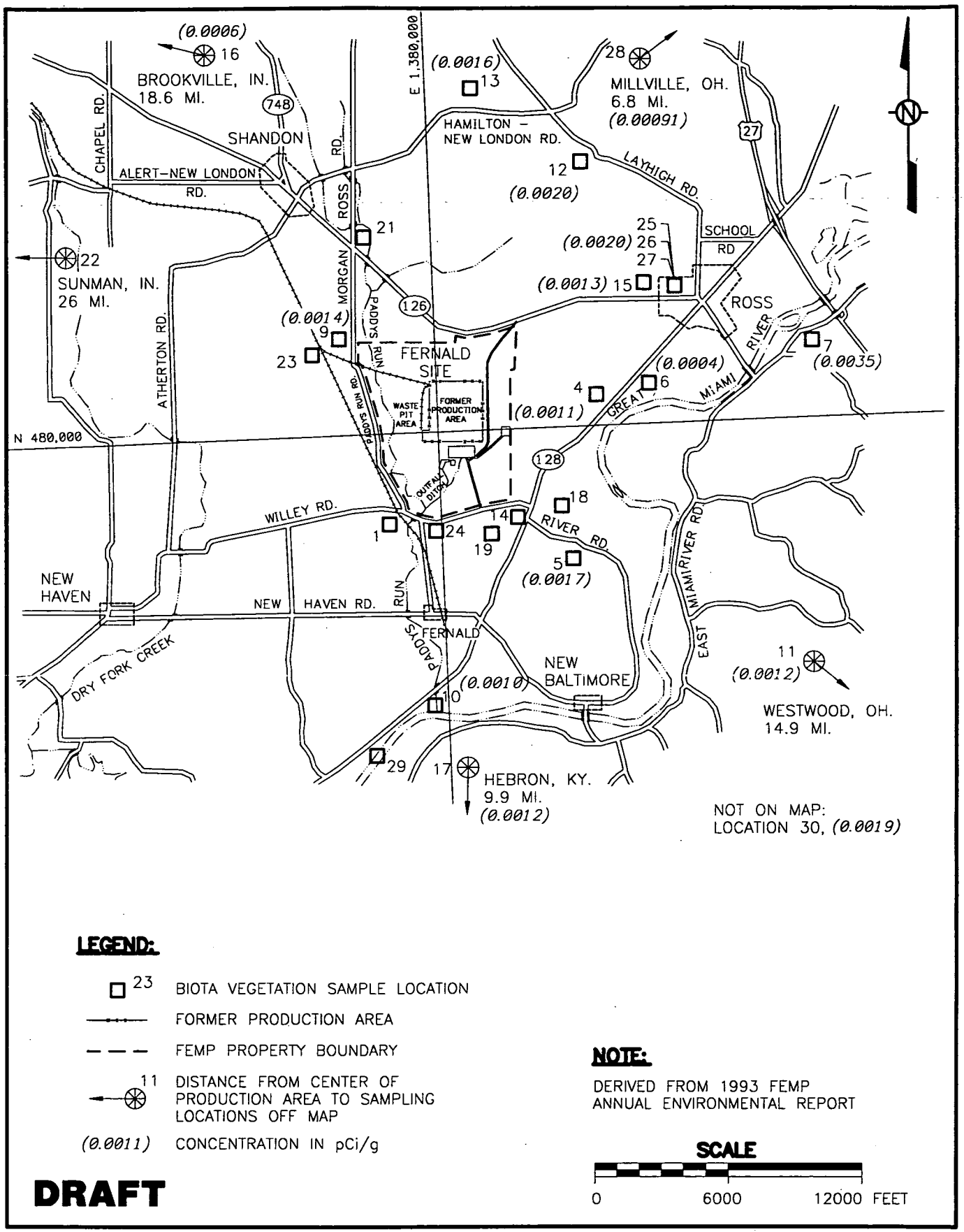

419195-A5 (OU5 RI) (PGH)
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FIGURE A.IX-3. URANIUM IN TOMATOES (pCi/g), 1993

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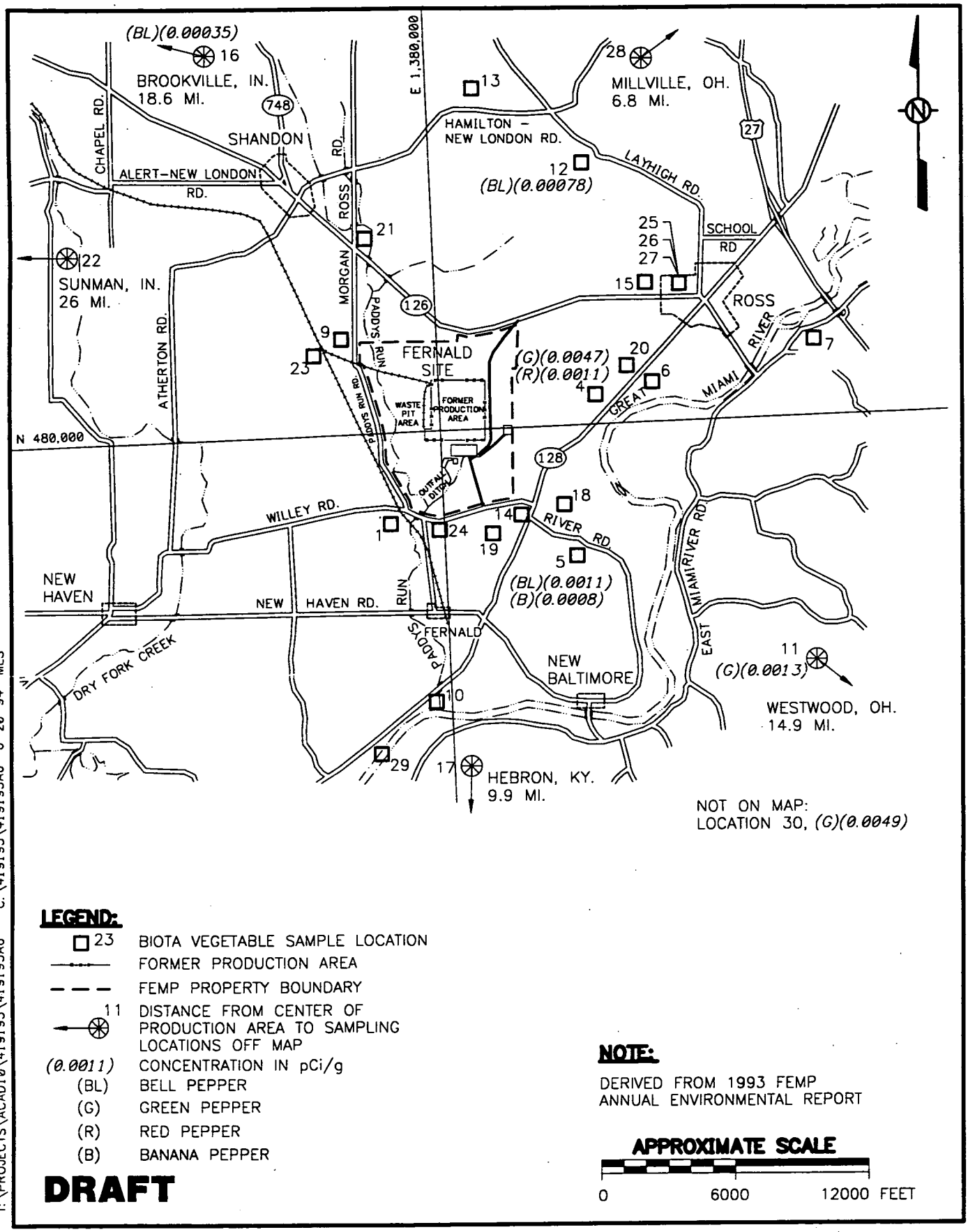

419195-A6 (OU5 RI) (PGH)
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FIGURE A.IX-4. AVERAGE URANIUM IN BELL, GREEN, RED, AND BANANA PEPPERS (pCi/g), 1993

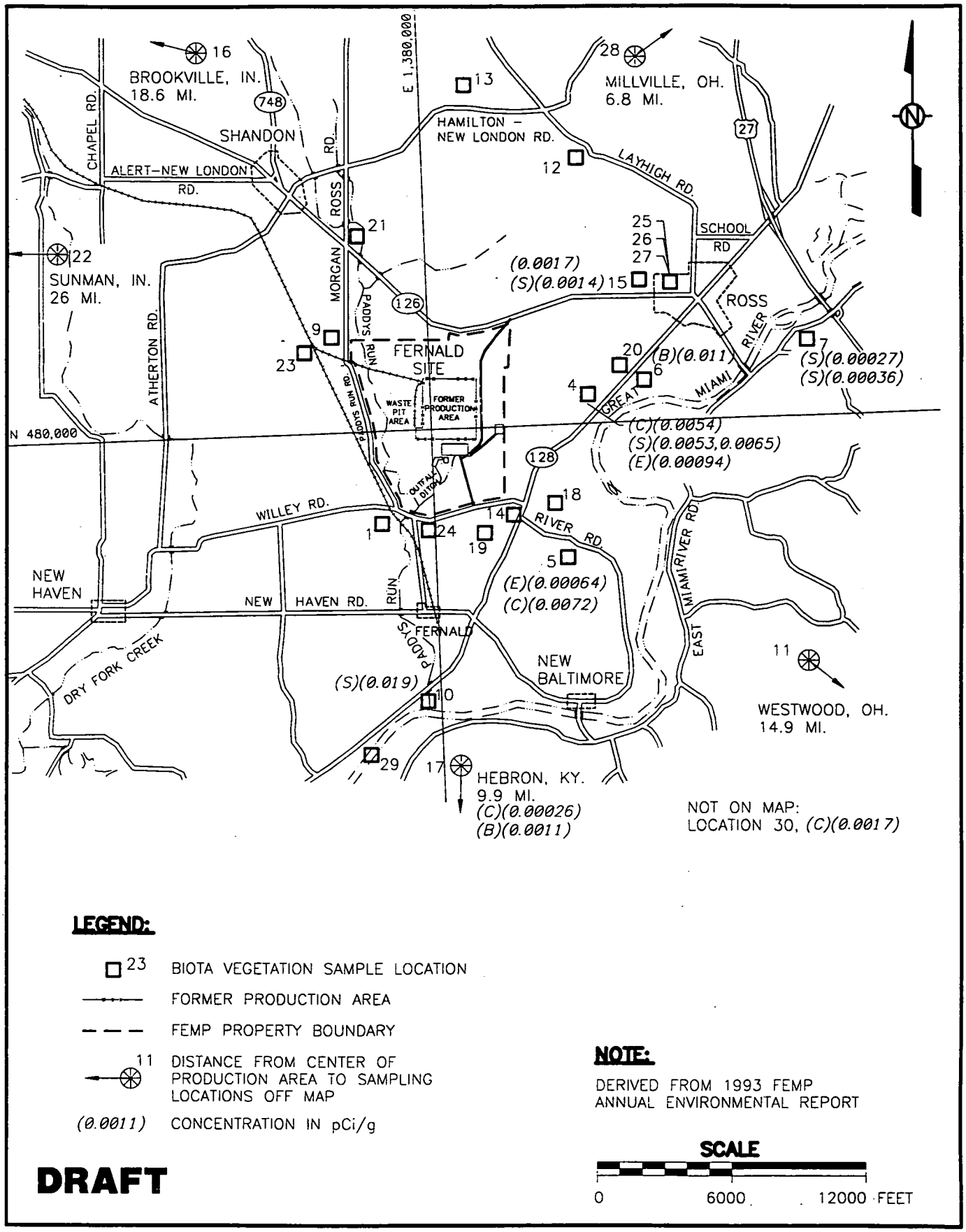

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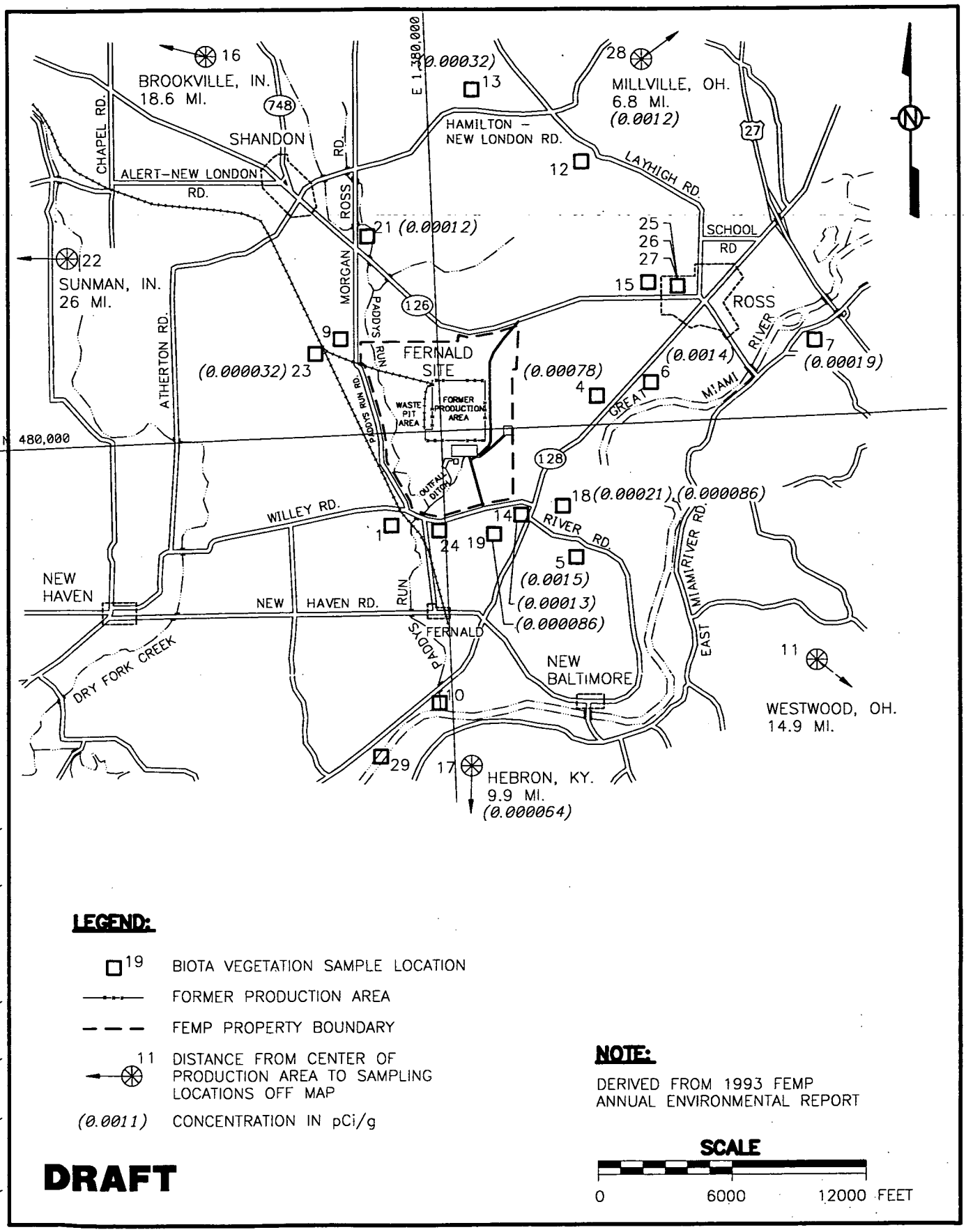
FIGURE A.IX-5. URANIUM IN EGG PLANT, GREEN BEANS, CUCUMBER AND SQUASH (pCi/g), 1993



419195-A7 (OU5 RI) (PGH)
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FIGURE A.IX-6. URANIUM IN CORN (pCi/g) 1993

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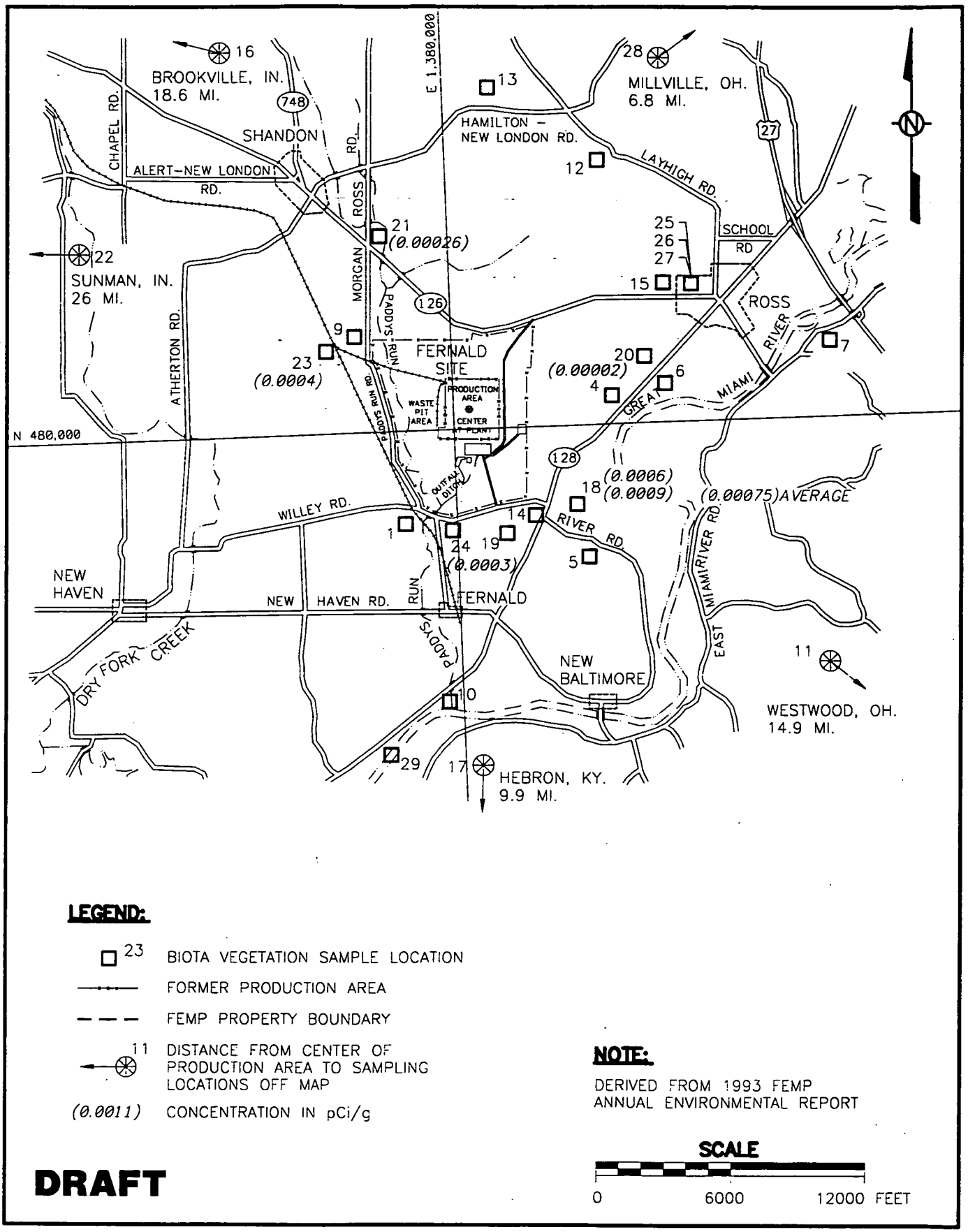

419195-A4 (OU5 RI) (PGH)
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FIGURE A.IX-7. URANIUM IN SOYBEANS (pCi/g), 1993

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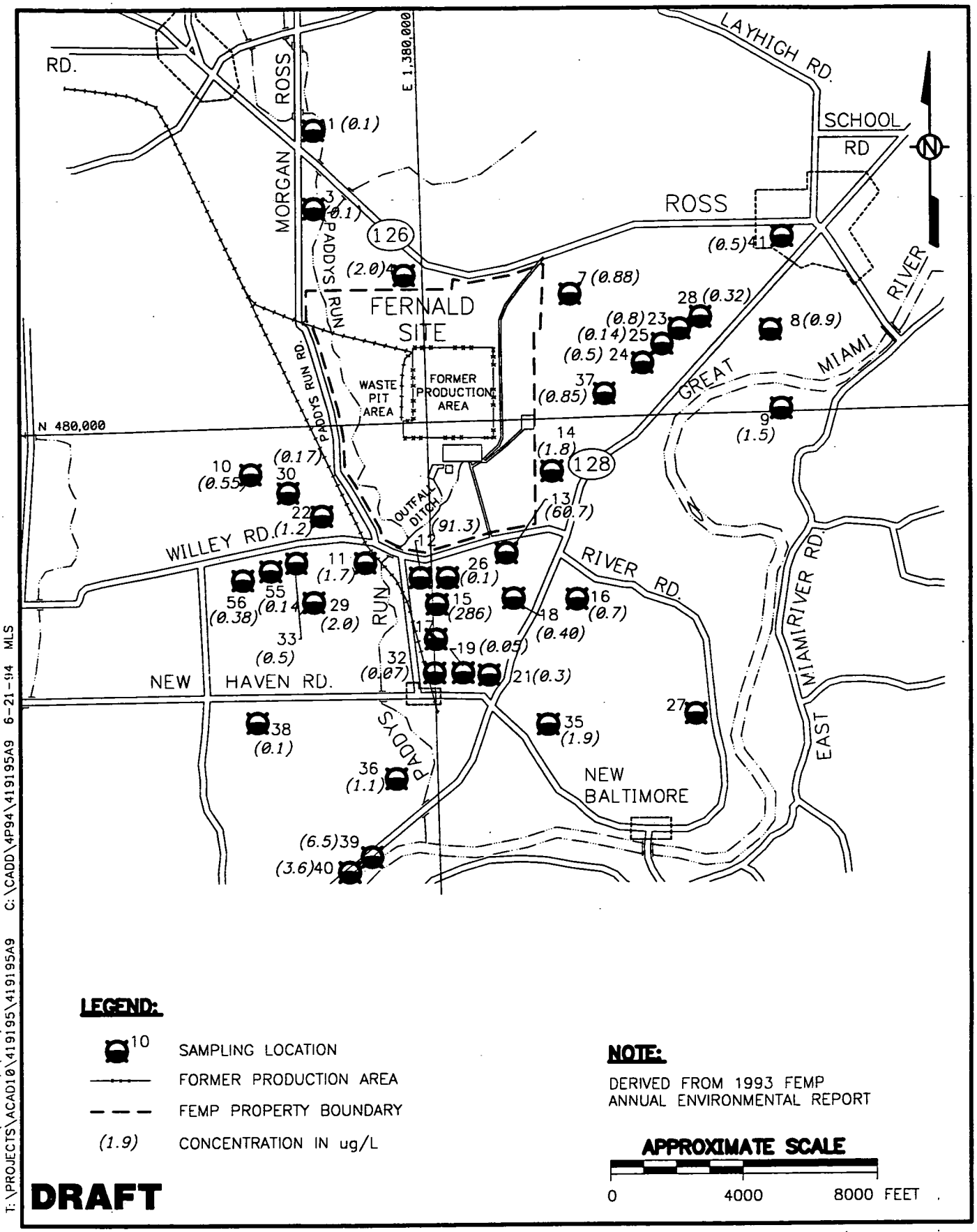
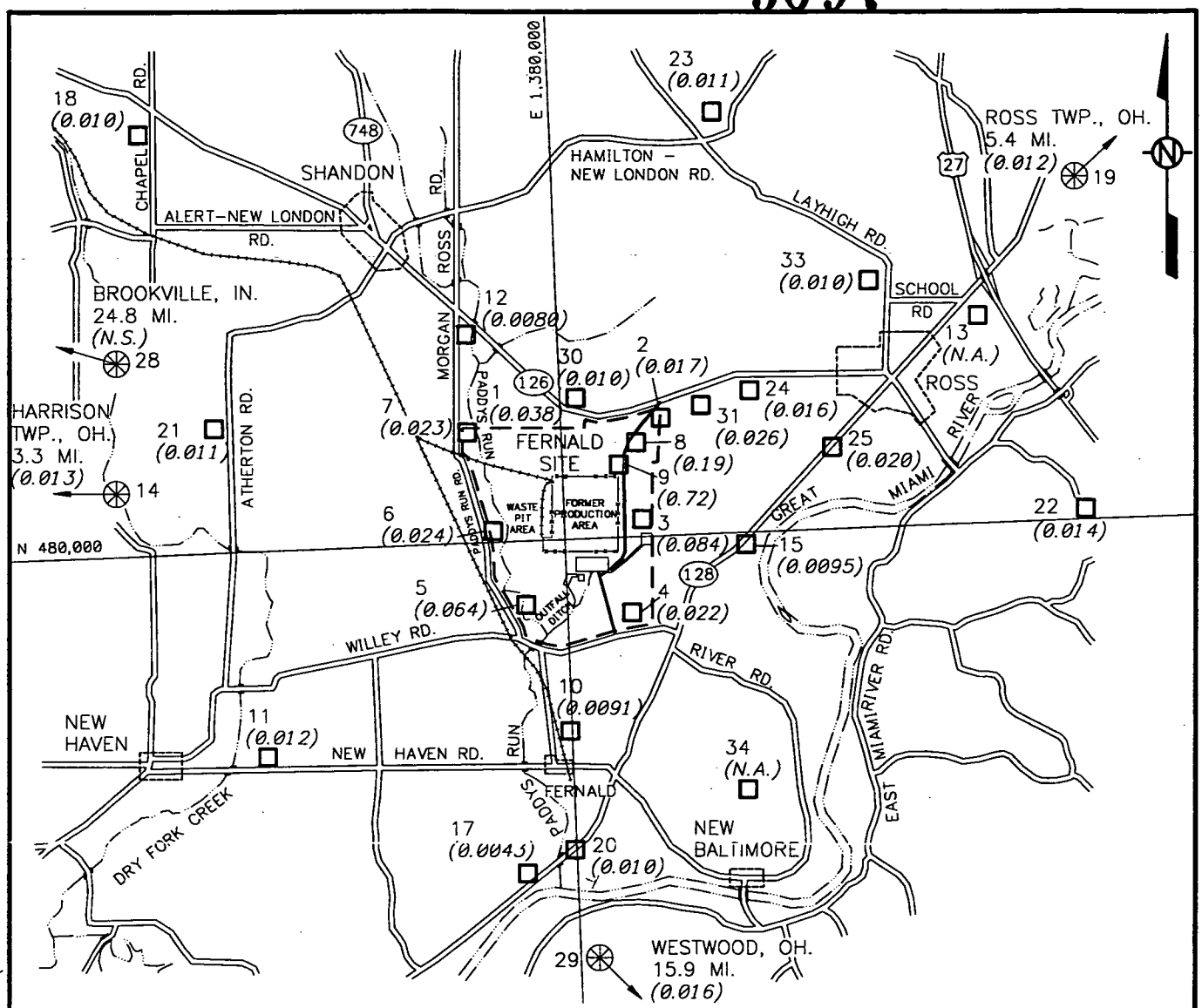


FIGURE A.IX-8. AVERAGE TOTAL URANIUM IN GROUNDWATER (ug/L), 1993 PRIVATE WELLS



LEGEND:

- 17 — BIOTA VEGETATION SAMPLE LOCATION
- FORMER PRODUCTION AREA
- FEMP PROPERTY BOUNDARY
- 11 — DISTANCE FROM CENTER OF PRODUCTION AREA TO SAMPLING LOCATIONS OFF MAP
- (0.0011) — CONCENTRATION IN pCi/g

NOTE:

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SCALE

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FIGURE A.IX-9. URANIUM IN GRASS (pCi/g), 1993

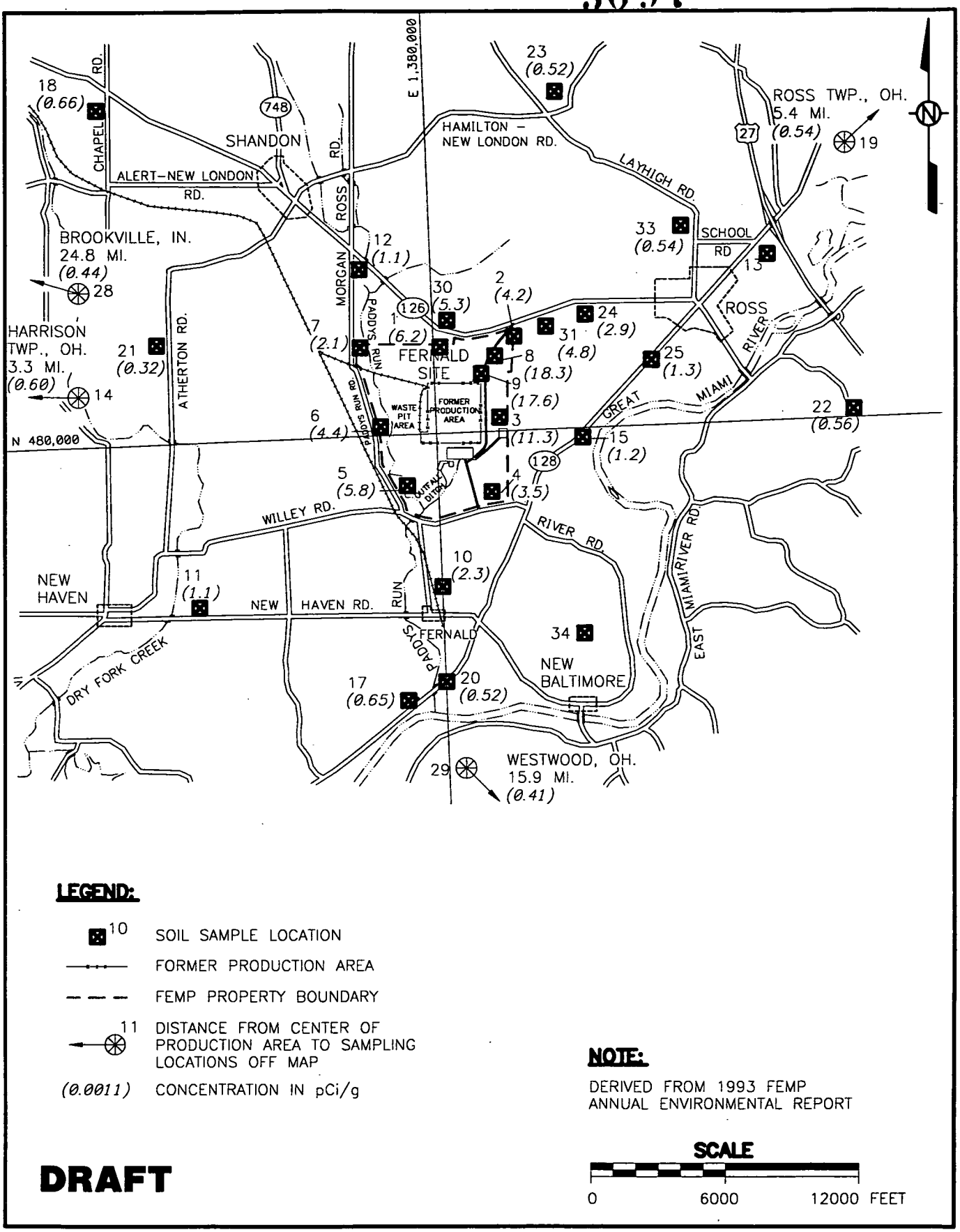

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FIGURE A.IX-10. URANIUM IN SOIL AT 0-2 INCHES (pCi/g), 1993

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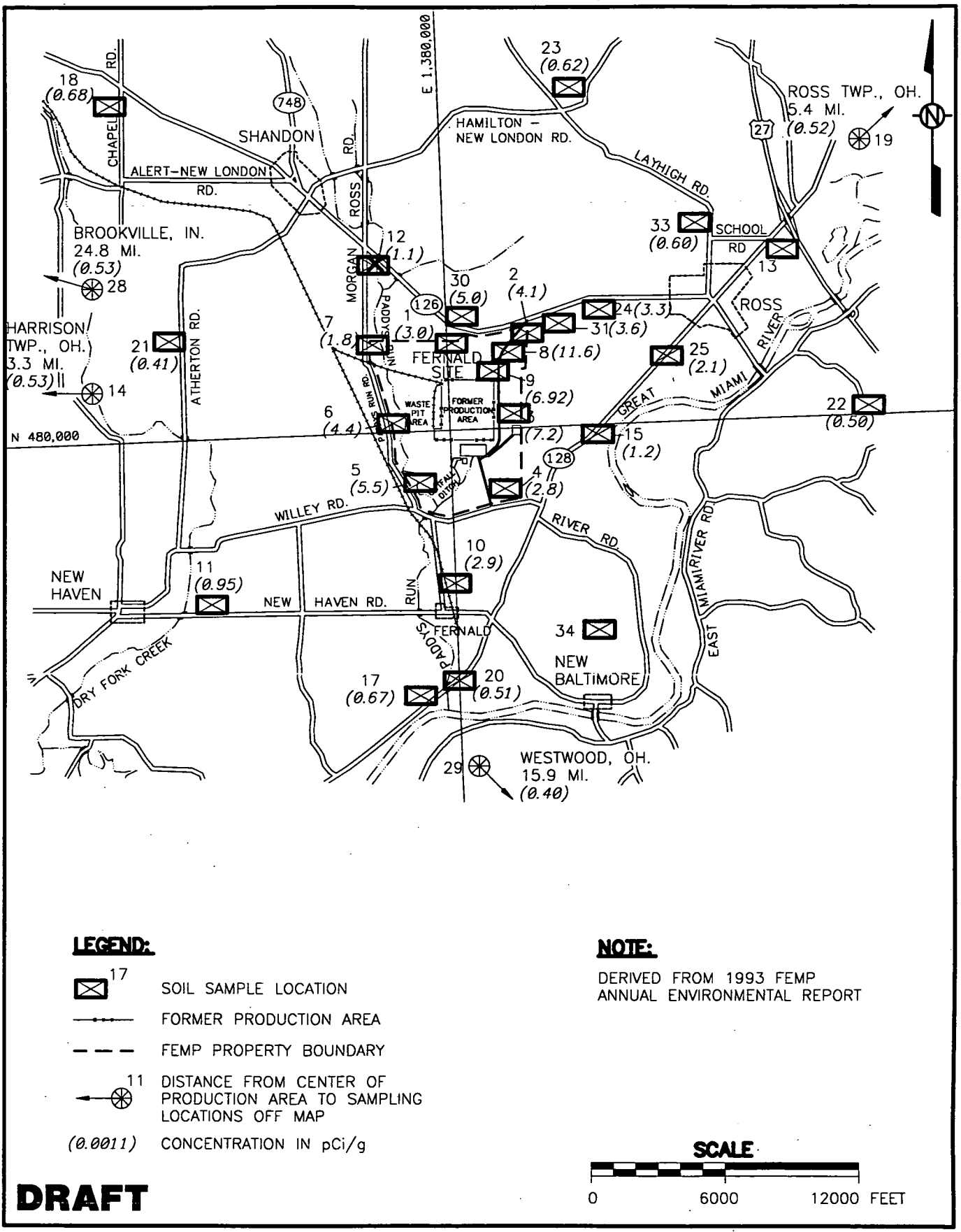

LEGEND:

- 17 — SOIL SAMPLE LOCATION
- FORMER PRODUCTION AREA
- FEMP PROPERTY BOUNDARY
- 11 — DISTANCE FROM CENTER OF PRODUCTION AREA TO SAMPLING LOCATIONS OFF MAP
- (0.0011) — CONCENTRATION IN pCi/g

NOTE:

DERIVED FROM 1993 FEMP ANNUAL ENVIRONMENTAL REPORT

SCALE

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419195-A11 (OU5 RI) (PGH)
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FIGURE A.IX-11. URANIUM IN SOIL AT 2-4 INCHES (pCi/g), 1993

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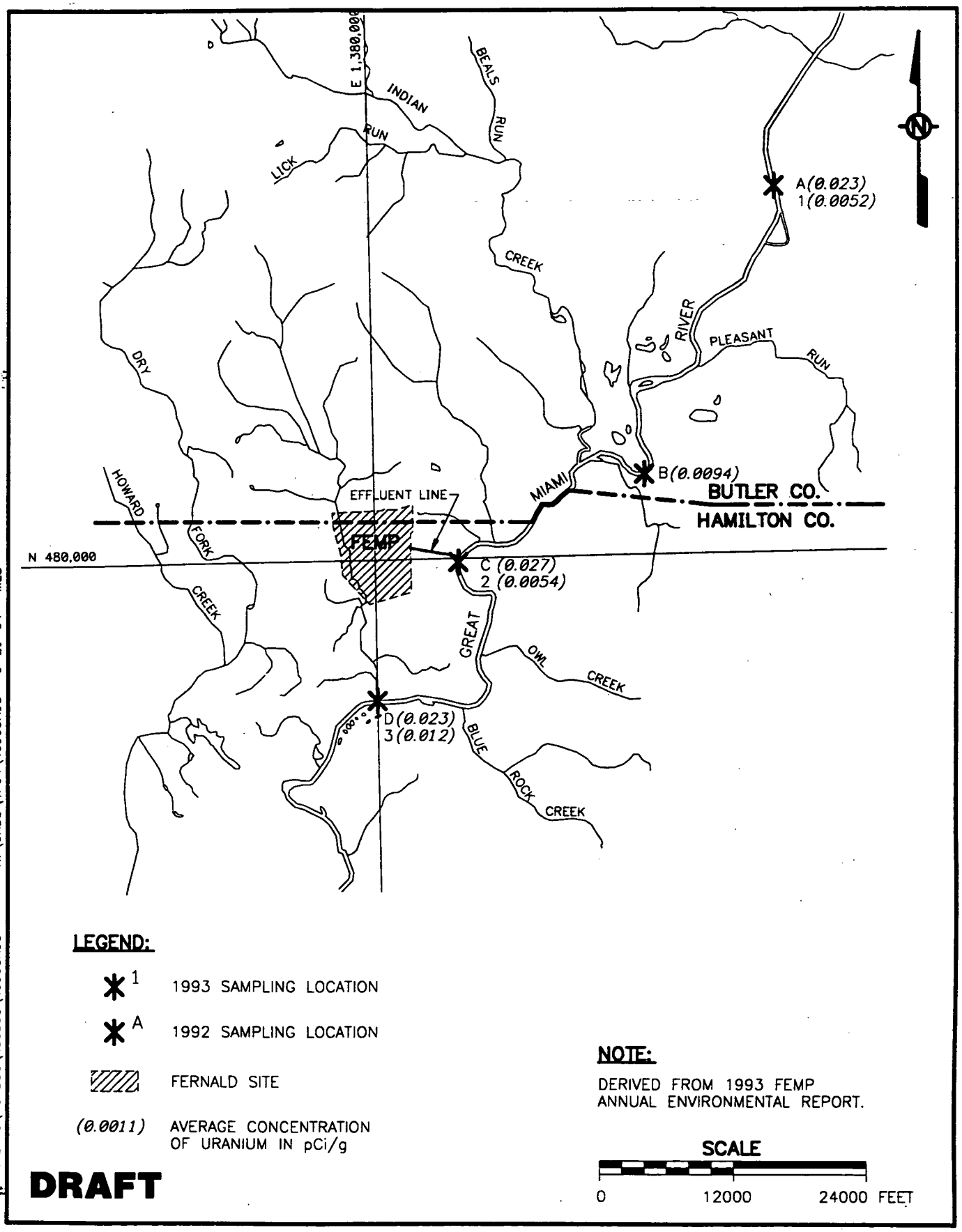
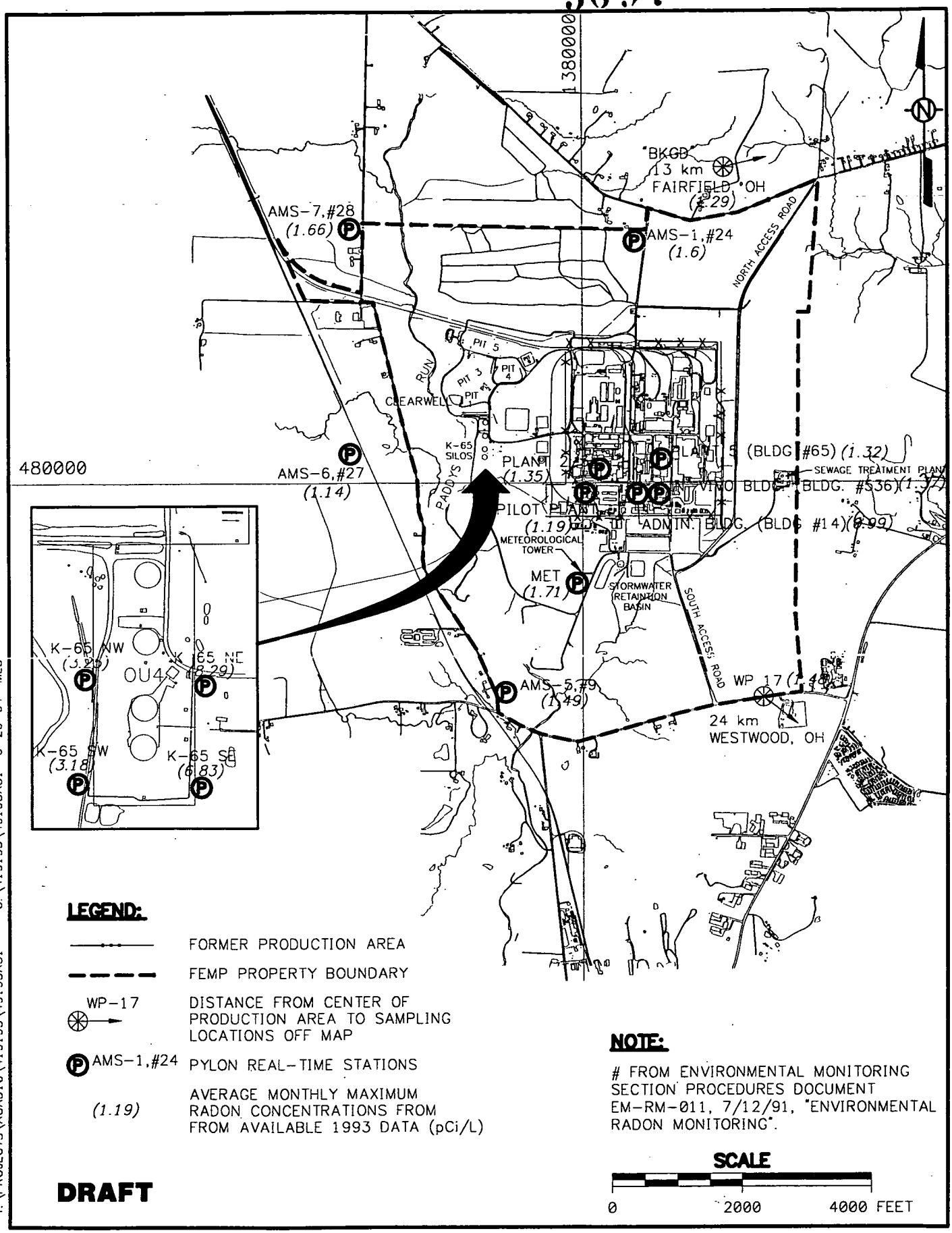


FIGURE A.IX-12. AVERAGE CONCENTRATION OF URANIUM IN FISH, GREAT MIAMI RIVER, 1992-1993 (REM)



419195-A31 (OU5 RI) (PGH)
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FIGURE A.IX-13. REAL-TIME RADON MONITORING LOCATIONS

A.X.1.0 POTENTIAL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

CERCLA §121(d)(2) states that for wastes left on site, remedial actions must comply with federal and state environmental laws that are legally applicable or are relevant and appropriate under the circumstances of the release. Off-site actions must comply only with requirements that are legally applicable.

The definition of applicable or relevant and appropriate requirements (ARARs) are:

- Applicable Requirements - Cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site.

- Relevant and Appropriate Requirements - Cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not "applicable" to a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstance at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site.

EPA, has also created another category of requirements known as "to be considered" (TBC) that includes nonpromulgated criteria, advisories, and guidance issued by federal or state governments.

Other nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the legal status of potential ARARs. These requirements will be evaluated along with ARARs. Atomic Energy Act (AEA) requirements for DOE's management of low-level radioactive waste are incorporated into DOE Order 5820.2A, developed under DOE's AEA authority. The order is generally consistent with and typically includes equivalent NRC 10 CFR 61 technical requirements that are appropriate for DOE operations and waste management. DOE Order 5820.2A requirements are requirements which, when included in a DOE CERCLA ROD, are enforceable cleanup standards under CERCLA. Limited sections of NRC's 10 CFR 61 requirements can be "relevant and appropriate" or TBC only in those situations when DOE Order 5820.2A does not clearly address a specific condition or when particulars of the site and supplemental requirements from 10 CFR 61 are needed to ensure protection of human health and the environment.

Identification of potential ARARs is initiated during scoping and continually refined during site characterization activities, analysis of alternatives and then finalized with the selection of the remedial alternatives in the Record of Decision.

The EPA document "Overview of ARARs" (Publication 9234.2-03/FS) directs that chemical- and location-specific ARARs be identified early in the process, generally during the site investigation, while action-specific ARARs are usually identified during the detailed analysis of alternatives in the FS. The three types of ARARs are defined as:

- Chemical-specific ARARs are usually health- or risk-based numerical values or methods used to determine acceptable concentrations of chemicals that may be found in or discharged to the environment (e.g., maximum contaminant levels [MCLs]) that establish safe levels in drinking water.

- Location-specific ARARs restrict actions or contaminant concentrations in certain environmentally sensitive areas. Examples of areas regulated under various federal laws include floodplains, wetlands, and locations where endangered species or historically significant cultural resources are present.

- Action-specific ARARs are usually technology- or activity-based requirements or limitations on actions or conditions involving special substances.

During the Operable Unit 5 RI, sufficient data has been developed to make initial judgments concerning the COCs in Operable Unit 5 and special location characteristics that may require special protection or action. The Operable Unit 5 COCs include the COCs of environmental media for all of the operable unit source areas which are summarized in Table 1. The pertinent chemical- and location-specific potential ARARs for Operable Unit 5 are described in the following sections.

A.X.1.1 POTENTIAL CHEMICAL-SPECIFIC ARARs

The chemical-specific ARARs (Table 2) for the Operable Unit 5 COCs are arranged in this section according to the following categories:

- RARs and TBC Guidance for Drinking Water and Groundwater
- ARARs and TBC Guidance for Surface Water
- ARARs for Air Emissions
- ARARs and TBC Guidance for Waste Classification
- ARARs and TBC Guidance for Radiation.

A.X.1.1.1 Potential ARARs and TBC Guidance for Drinking Water and Groundwater

There are no applicable requirements for drinking water or groundwater for Operable Unit 5. The National Contingency Plan (40 CFR §300.430 (e)(2)(i)B-D) states that nonzero maximum contaminant level goals (MCLGs) and MCLs are considered to be relevant and appropriate for any aquifer that is a potential drinking water source. For the area surrounding the FEMP site, the Great Miami Aquifer is a current drinking water source, the acquifer beneath the site is considered a potential drinking water source.

If attainment of a nonzero MCLG or MCL is impossible because the background level of the chemical subject to CERCLA authority (e.g., synthetic chemical) is higher than that of the MCLG or MCL, attainment of the MCLG or MCL would not be relevant and appropriate (CERCLA Compliance with the CWA and Safe Drinking Water Act [SDWA], Publication 9243.2-06/FS, January 1990). Promulgated nonzero MCLGs and MCLs are considered potentially relevant and appropriate, while proposed ones are TBC.

A.X.1.1.2 Potential ARARs and TBC Guidance for Surface Water and Sediment

CERCLA §121 states that hazardous substances, pollutants, or contaminants left on site at the conclusion of the remedial action shall attain Federal Water Quality Criteria where they are relevant and appropriate under the circumstances of the release or threatened release.
CERCLA §121(d)(2)(B)(i) requires this determination to be based on the designated or potential use of the water, the media affected, the purpose of the criteria, and the current information. OEPA has promulgated Water Quality Standards specific to state waters and their actual or potential uses. The designated uses of the Great Miami River and its tributaries are for a warm water aquatic life habitat, agricultural, and industrial water supply and primary contact recreation (Ohio Administrative Code [OAC] 3745-1-21).

The OEPA-promulgated standards are considered potentially applicable for the direct discharge of wastewater generated during a CERCLA action and potentially relevant and appropriate for use in determining clean-up goals for soil or groundwater that is or has the potential to impact the surface water.

The values provided in the table are the acceptable instream levels. The level of protection is defined as the low flow during which the water quality standards must still be met. Discharge levels are

based on the designated level of protection and the upstream concentration of the contaminant of concern. Acceptable discharge levels are governed by the most stringent level based on the protection of the designated uses.

A.X.1.1.3 Potential ARARs and TBC Guidance for Air Emissions

EPA egulations for National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR §61.92) provide a potentially applicable air emission standard for remedial activities in Operable Unit 5. This regulation limits the effective dose from airborne radionuclide emissions to 10 mrem per person. In addition, radon-222 emissions are limited to 20 pCi/s/m^2 from each Operable Unit 5 source (40 CFR §61.192).

A.X.1.1.4 Potential ARARs on Waste Classification

To determine the regulatory classification of the wastes in Operable Unit 5, the concentrations of contaminants found in the wastes and soil are compared to the levels defining a regulatory classification. The two waste classifications that are important in defining the Operable Unit 5 wastes are the RCRA Subtitle C Toxicity Characteristic List and the OEPA Nontoxic Policy (OEPA Policy Number 4.07).

A.X.1.1.5 Potential ARARs and TBC Guidance for Radiation

The EPA regulations and DOE Orders control radiological emissions from all sources to all media. The EPA regulations are not applicable but may be relevant and appropriate to the wastes and remedial activities in Operable Unit 5. While DOE Orders 5400.1 and 5820.2A contain requirements for the control of radiological releases from DOE facilities, because these orders are not promulgated they are used as TBC requirements. For the purposes of the Operable Unit 5 assessment of remedial alternatives in the FS, potentially relevant and appropriate EPA regulations will be supplemented with DOE Order requirements where the DOE requirements are more stringent.

A.X.1.2 POTENTIAL LOCATION-SPECIFIC ARARs

The RI identifies special characteristics (e.g., presence of wetlands and habitat of endangered species) of the operable unit that allows the identification of statutes and regulatory requirements that may prohibit activities or require the existing conditions to be rectified. A summary of location-specific ARARs is attached in Table 3.

A.X.1.3 USE OF ARARs/TBCs

The potential chemical- and location-specific ARARs/TBCs identified for Operable Unit 5 will be finalized during the Feasibility Study/Proposed Plan. The action-specific ARARs and additional location-specific ARARs/TBCs (e.g., siting criteria) will be identified and analyzed in the Feasibility Study/Proposed Plan based on the development of alternatives. The pertinent chemical-specific ARARs and TBCs will be used in conjunction with the risk assessment to determine PRGs for Operable Unit 5. The ROD will contain the final list of ARARs/TBCs and remedial goals that will direct the Operable Unit 5 Remedial Design and Remedial Action.

TABLE 1

SUMMARY OF CONSTITUENTS OF CONCERN BY OPERABLE UNIT SOURCE AREAS

Constituents of Concern	COCs for OU1[a]	COCs for OU2[b]	COCs for OU4[c]	Potential COCs for OU5[d]	Potential COCs for OU3[e]
1,1-dichloroethene				*	
1,1-dichloroethane				*	*
1,2-dichloroethene				*	*
1,2-dichloroethane				*	
Benzene				*	*
Carbazole		*		*	
Carbon disulfide				*	
Carbon tetrachloride				*	*
Chloroform				*	*
Chlorobenzene				*	
Methylene chloride			*	*	*
N-nitrosodipropylamine	*			*	
Styrene				*	
Tetrachloroethene	*			*	*
Trichloroethene				*	*
Vinyl chloride	*			*	*
2-chlorophenol				*	
Bis(2-ethylhexyl)phthalate				*	
Pentachlorophenol	*			*	*
Benzo(a)anthracene	*	*	*	*	*
Benzo(a)pyrene	*	*	*	*	*
Benzo(b)fluoranthene	*	*	*	*	*
Benzo(k)fluoranthene	*	*	*	*	*
Benzo(g,h,i)perylene			*	*	*

TABLE 1 (Continued)

Constituents of Concern	COCs for OU1[a]	COCs for OU2[b]	COCs for OU4[c]	Potential COCs for OU5[d]	Potential COCs for OU3[e]
Chrysene	*		*	*	*
Dibenzo(a,h)anthracene	*	*		*	*
Indeno(1,2,3-cd)pyrene	*	*		*	*
Phenanthrene				*	*
Aroclor-1221	*				
Aroclor-1248				*	*
Aroclor-1254	*	*		*	*
Aroclor-1260	*	*		*	*
Beta bhc				*	
Heptachlor epoxide				*	
Dieldrin		*		*	
Chlordane				*	*
Tetrachlorodibenzo-p-dioxin					
Tetrachlorodibenzofuran	*				
Pentachlorodibenzofuran	*				
Hexachlorodibenzo-p-dioxin	*				
Hexachlorodibenzofuran	*				
Heptachlorodibenzo-p-dioxin	*				
Heptachlorodibenzofuran	*				
Octachlorodibenzo-p-dioxin	*			*	
Octachlorodibenzofuran	*			*	
Cyanide				*	*
Antimony	*	*	*	*	*
Arsenic	*	*	*	*	*
Barium				*	*

TABLE 1 (Continued)

Constituents of Concern	COCs for OU1[a]	COCs for OU2[b]	COCs for OU4[c]	Potential COCs for OU5[d]	Potential COCs for OU3[e]
Beryllium	*	*		*	*
Cadmium	*		*	*	*
Chromium vi	*		*	*	*
Copper	*			*	*
Lead	*			*	*
Magnesium				*	*
Manganese	*			*	*
Mercury	*			*	*
Molybdenum			*	*	*
Nickel	*		*	*	*
Selenium				*	*
Silver	*		*	*	*
Thallium	*		*	*	*
Uranium-total	*	*		*	*
Vanadium	*		*	*	*
Zinc			*	*	*
Nitrate				*	*
Fluoride				*	*
$Cs_{137}+1$ progeny x	*	*	*	*	*
$Np_{237}+1$ progeny	*	*	*	*	*
Pu_{238}	*	*	*	*	*
$Pu_{239/240}$	*	*	*	*	*
$Ra_{226}+8$ progeny	*	*	*	*	*
$Sr_{90}+1$ progeny	*	*	*	*	*
Tc_{99}	*	*	*	*	*
Th_{230}	*	*	*	*	*
$Th_{232}+10$ progeny	*	*	*	*	*

TABLE 1 (Continued)

Constituents of Concern	COCs for OU1[a]	COCs for OU2[b]	COCs for OU4[c]	Potential COCs for OU5[d]	Potential COCs for OU3[e]
U_{234}	*	*	*	*	*
$U_{235/236}$	*	*	*	*	*
U_{2384}+2 progeny	*	*	*	*	*
Rn_{222}+4 progeny	*	*	*	*	*

[a]Based on draft OU1 FS.
[b]Based on draft OU2 FS.
[c]Based on final OU4 FS.
[d]Based on OU5 RI data.
[e]Based on OU3 Work Plan.

TABLE ARAR-2
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
DRINKING WATER			
MCLs for Radiologic Contaminants			
EPA National Primary Drinking Water Regulations 40 CFR §141.15 and §141.16 Ohio Drinking Water Regulations OAC 3745-81-15 OAC 3745-81-16	The following are maximum contaminant levels for radiological contaminants: Combined radium-226 and -228 ..... 5 pCi/L Gross alpha particle activity ..... 15 pCi/L (including radium-226 but excluding radon and uranium) Beta and photon radioactivity ..... 4 mrem/year from man-made radionuclides Strontium 90 ..... 8 pCi/L	Relevant and Appropriate	This requirement is not applicable to OU5 activities because there are no public drinking water systems involved with this remediation. The MCLs are considered relevant and appropriate to the GMA as it is a sole source aquifer currently used to supply drinking water to the regional area.
Proposed MCLs for Radiologic Contaminants			
56 Federal Register 33050 (July 18, 1991)	The following are the proposed maximum contaminant levels for radiological contaminants: Radium-226 ..... 20 pCi/L Radium-228 ..... 20 pCi/L Radon-222 ..... 300 pCi/L Uranium ..... 20 μg/L (30 pCi/L) Beta and photon emitters ..... 4 mrem ede/year (excluding radium-228) Adjusted gross alpha emitters ..... 15 pCi/L (excluding radium-226, uranium, and radon-222)	TBC	These proposed MCLs are not ARARs because they are not promulgated. The proposed MCLs have been adopted as TBCs because they represent health-based guidance for application to the GMA to ensure protectiveness.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement			ARAR/TBC	Rationale
	MCLs for Organic Contaminants (Safe Drinking Water Act)				
EPA National Primary Drinking Water Standards for MCLGs 40 CFR §141.12 and §141.50 EPA National Primary Drinking Water Standards for MCLs 40 CFR §141.61 Ohio Drinking Water Regulations for MCLs OAC 3745-81-12	The following are the Federal non-zero maximum contaminant level goals (MCLG) and State of Ohio and Federal maximum contaminant levels (MCL) for organic contaminants in mg/L:			Relevant and Appropriate	This requirement is not applicable to OU5 activities because there are no public drinking water systems involved with this remediation. The MCLs are considered relevant and appropriate to the GMA as it is a sole source aquifer currently used to supply drinking water to the regional area. Where the State of Ohio standard is more stringent than the federal standard, the Ohio standard is presented. NOTES: * = The MCL is the same as the MCLG.
		Federal & Ohio MCL (mg/L)	Federal MCLG (mg/L)		
	Alachlor	0.002			
	Benzene	0.005			
	Benzo(a)pyrene	0.0002			
	Bis (2-ethylhexy) phthalate	0.006			
	Carbon Tetrachloride	0.005			
	Chlordane	0.002			
	1,2-Dichloroethane	0.005			
	1,1-Dichloroethene	0.007			
	1,2-Dichloroethene	0.07			
	Heptachlor Epoxide	0.0002			
	Pentachlorophenol	0.001			
	Polychlorinated Biphenyls (PCBs)	0.0005			
	Styrene	*	0.1		
	Tetrachloroethylene	0.005			
	Trichloroethylene	0.005			
	Vinyl Chloride	0.002			

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Proposed MCLs for Organic Contaminants (Safe Drinking Water Act, continued...)			
55 Federal Register 30370 (July 25, 1990)	The following are proposed maximum contaminant levels (MCL) for organic contaminants in mg/L: MCL (mg/L) Benzo(a)anthracene 0.0001 Benzo(b)fluoranthene 0.0002 Benzo(k)fluoranthene 0.0002 Chrysene 0.0002 Dibenzo(a,h)anthracene 0.0003 Indeno(1,2,3-cd)pyrene 0.0004	TBC	These proposed MCLs are not ARARs because they are not promulgated. The proposed MCLs have been adopted as TBCs because they represent health-based guidance for application to the GMA to ensure protectiveness.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement			ARAR/TBC	Rationale
Proposed MCLs for Inorganic Contaminants (Safe Drinking Water Act, continued...)					
EPA National Primary Drinking Water Regulations for MCLGs and MCLs 40 CFR 141.11 40 CFR 141.51 40 CFR 141.62 Ohio Drinking Water Regulations OAC 3745-81-11 OAC 3745-81-23	The following are the non-zero maximum containment level goals (MCLG) and maximum contaminant levels (MCL) for inorganic contaminants in mg/L:			Relevant and Appropriate	These proposed MCLGs and MCLs are not ARARs because they are not promulgated. The proposed MCLGs and MCLs have been adopted as TBCs because they represent health-based guidance for application to the GMA to ensure protectiveness. * = The MCL is the same as the MCLG. The MCLs for copper and lead are treatment techniques that are triggered by action levels. The action level for copper is 1.3 mg/L and the action level for lead is 0.015 mg/L.
		Ohio & Fed. MCL (mg/L)	Federal MCLG (mg/L)		
	Antimony	0.006	*		
	Arsenic	0.005	*		
	Barium	1.0	*		
	Cadmium	0.005			
	Chromium	0.05			
	Copper	Treatment Technique			
	Copper	1.3			
	Cyanide	0.2	*		
	Fluoride	4.0	*		
	Lead	Treatment Technique			
	Mercury	0.002	*		
	Nickel	0.1	*		
	Nitrate	10.0	*		
	Selenium	0.01			
	Silver	0.05			
	Thallium	0.002			

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
MCLs for Resource Conservation and Recovery Act, Subtitle D			
Chemicals in Drinking Water (Solid Waste Disposal Facility) 40 CFR 257.2-4 Ohio Solid Waste Regulations OAC 3745-27-10(D) Chemicals in Drinking Water (Hazardous Waste Disposal Facility) 40 CFR 264.94 Ohio Hazardous Waste Regulations OAC 3745-54-94	A solid waste disposal facility shall not contaminate an underground drinking water source beyond the solid waste boundary (outermost perimeter of the waste). The concentration of chemicals shall not exceed background levels or listed MCLs, whichever is higher. A hazardous waste disposal facility must comply with the requirements specified in the facility permit for the uppermost aquifer underlying the waste management area beyond the point of compliance, which is a vertical surface located at the hydraulically downgradient limit of the waste management that extends down into the uppermost aquifer underlying the regulated area. The concentration of chemicals in groundwater shall not exceed background levels or the listed maximum concentration level (MCL) of the constituent for groundwater protection, whichever is higher. **Inorganic Chemicals** — Solid Waste RCRA MCL (mg/L) — Hazardous Waste RCRA MCL (mg/L) Arsenic 0.05 0.05 Barium 1.00 1.00 Cadmium 0.01 0.01 Chromium 0.05 0.05 Lead 0.05 0.05 Mercury 0.002 0.002 Selenium 0.01 0.01 Silver 0.05 0.05 **Radionuclides** Combined Ra-226 & Ra-228 5 pCi/L Gross alpha particle activity, excluding radon & uranium 15 pCi/L	Relevant and Appropriate	40 CFR 257.2-4 and 40 CFR 264.94 are relevant and appropriate because OU5 contains, or potentially contains, several of the chemicals listed in the regulation. Compliance with the MCLGs and MCLs under the Safe Drinking Water Act (SDWA) will assure compliance with these RCRA MCLs.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
SURFACE WATER			
Discharges of Liquid Waste to Surface Waters			
Ohio Water Quality Standards OAC 3745-1-04	"Five Freedoms" for Surface Water: All surface waters of the State shall be free from: • objectionable suspended solids • floating debris, oil and scum • materials that create a nuisance • toxic, harmful or lethal substances • nutrients that create nuisance growth	Relevant and Appropriate	OAC 3745-1-04 pertains to both discharges to surface waters of the State as a result of remediation and any on-site surface waters affected by site conditions.
Use Designation of Surface Water			
Ohio Water Quality Standards OAC 3745-1-21	Paddy's Run and the Great Miami River are designated as: • warmwater aquatic life habitat • agricultural and industrial water supply • primary contact recreation	Applicable	The Great Miami River between Ross Rd. River Mile (RM) 95.7 and Taylorsville Dam (RL 92.6) is a state resource water and RM 130 and 118 are public water supplies. Discharges to the Great Miami River and Paddy's Run must not cause a violation of applicable numeric or narrative water quality standards for these use designations.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Warmwater Habitat Water Quality Criteria		
Ohio Water Quality Standards OAC 3745-1-07	Surface Waters in the State of Ohio must comply with the maximum concentrations of each contaminant listed below for inside and outside the mixing zones of the receiving water to protect warm water aquatic habitats. "Outside Mixing Zone" shall be met after the effluent and the receiving water have been determined to be reasonably well mixed based upon information readily available to the director. The criteria listed as "Inside Mixing Zone Maximum" shall be applicable as end-of-pipe maximum effluent limits or as criteria to be met within a short distance of the effluent pipe if it can be demonstrated that discharge-induced mixing occurs as per the definition of "area of initial mixing" in rule 3745-1-02.	Applicable	OAC 3745-1-07 is applicable because the site is bordered by the Great Miami River and Paddys Run.

Parameter (μg/L or as marked)	outside mixing zone Max.	outside mixing zone Avg.	inside mixing zone Max.	
Antimony (total)	650	190	1,300	
Arsenic	360	190	720	
Benzene	1,100	560	2,100	
Beryllium (total)	520	23	1,000	Beryllium is based on a water hardness of 100 mg/L calcium carbonate ($CaCO_3$).
Bis(2-ethylhexyl) phthalate	1,100	8.4	2,200	
Cadmium	5.6	1.4	11	Cadmium is based on a water hardness of 100 mg/L $CaCO_3$.
Carbon tetra-chloride	1,800	280	3,500	
Chlordane	-	0.01	-	
Chlorobenzene	590	26	1,200	
Chromium	1,800	210	3,600	

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement			ARAR/TBC	Rationale
	Warmwater Habitat Water Quality Criteria (Continued)				
	Parameter (μg/L or as marked)	outside mixing zone Max.	outside mixing zone Avg.	inside mixing zone Max.	
	Chloroform	1,800	79	3,600	
	2-Chlorophenol	200	8.8	400	
	Copper (total)	18	12	35	Copper is based on a water hardness of 100 mg/L $CaCO_3$.
	Cyanide (free)	46	12	92	
	1,2 Dichloro-ethane	12,000	3,500	24,000	
	Dieldrin	-	0.005	-	
	Lead (total)	130	6.9	260	Lead is based on a water hardness of 100 mg/L $CaCO_3$.
	Mercury (total)	1.1	0.2	2.2	
	Methylene chloride	9,700	430	19,000	
	Nickel (total)	1,600	170	3,100	Nickel is based on a water hardness of 100 mg/L $CaCO_3$.
	Pentachlorophenol	5.3	3.2	11	
	PCBs	-	0.001	-	
	Selenium (total)	20	5.0	40	
	Silver (total)	1.6	1.3	3.2	Silver is based on a water hardness of 100 mg/L $CaCO_3$.
	Tetrachloroethylene	540	73	1,100	

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement				ARAR/TBC	Rationale
	Warmwater Habitat Water Quality Criteria (Continued)					
	Parameter (µg/L or as marked)	outside mixing zone Max.	outside mixing zone Avg.	inside mixing zone Max.		
	Trichloroethylene	1,700	75	3,400		
	Thallium (total)	71	16	140		
	Zinc (total)	120	110	230		Zinc is based on a water hardness of 100mg/L $CaCO_3$.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Human Health and Agricultural Water Supply Criteria		
Ohio Water Quality Standards OAC 3745-1-07	See previous requirement for explanation of inside/outside mixing zones. The maximum (outside mixing zone) concentrations for contaminants listed below are based on the designated use of the surface water body as Human Health or Agricultural.	Applicable	OAC 3745-1-07 is applicable because the site is bordered by the Great Miami River and Paddy's Run.

Parameter (µg/L or as marked)	Human Health	Agri-cultural
Antimony (total)	4,300	-
Arsenic	-	100
Benzene	710	-
Beryllium (total)	1.17	100
beta-BHC	0.55	-
Bis(2-ethylhexyl) phthalate	59	-
Cadmium	-	50
Carbon tetrachloride	44	-
Chromium (total)	3,433,000	100
Copper (total)	-	500
1,2 Dichloroethane	990	-
Dieldrin	0.00076	-
Fluoride (mg/L)	-	2.0
Lead (total)	-	100
Mercury (total)	0.012	10
Nickel (total)	4,600	200
N-Nitrosodi-n-propylamine	12.4	-
PCBs	0.00079	-
PAHs	0.31	-
Selenium (total)	-	50
Thallium (total)	48	-
Vinyl chloride	5,250	-
Zinc Total	-	25,000

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
RADIATION DOSE LIMITS			
National Emission Standards for Hazardous Air Pollutants			
40 CFR §61.41 [DOE Order 5400.5 Chapter II (1)(c)]	Concentration of radioactive material which may be released to the general environment in ground water, surface water, air, soil, plants or animals must not result in an annual dose exceeding an equivalent of 25 mrems to the whole body, 75 mrems to the thyroid, and 25 mrems to any other organ of any member of the public. Reasonable measures should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable (ALARA).	Applicable	40 CFR 61.41 is applicable to remedial actions taken at OU5 because radionuclides have been identified as constituents of concern and may be released to the environment as a result of actions taken at the site. This DOE Order is not an ARAR because it is not promulgated. However, it is a TBC because it is an equivalent standard with 40 CFR 61.41

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Dose Limits for Individual Members of the Public			
Ohio General Radiation Protection Standards OAC 3701-38-15 (A)(1),(B)	Operations shall be conducted such that: • the total effective dose equivalent to individual members of the public from the operation does not exceed 0.1 rem (100 mrem) in a year • the dose in any unrestricted area from external sources does not exceed 0.002 rem (2mrem) in any one hour	Relevant and Appropriate	This OAC standard is relevant and appropriate because of the potential to result in the exposure to members of the public. Compliance with NESHAP 40 CFR 61.41 above will assure compliance with first bullet. This requirement is not found in NESHAP or in DOE Orders.

AIR

National Emissions Standards for Emissions of Radionuclides Other than Radon From DOE Facilities			
National Emission Standards for Hazardous Air Pollutants 40 CFR §61.92, 61.93 Subpart H [Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter II (1)(b)]	Emissions of radionuclides (except radon-220 and radon-222) to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr. To determine compliance with the standard, radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated using EPA approved sampling procedures, computer models CAP-88 or AIRDOS-PC, or other procedures for which EPA has granted prior approval.	Applicable	All remedial actions have the potential to release radionuclides to the atmosphere through fugitive dust and/or point source emissions. The DOE Order serves as a TBC because it is equivalent to the standards presented for 40 CFR 61.92 and 40 CFR 61.93.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Control of Radon Emissions			
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings 40 CFR §192.02 (b) Subpart A 40 CFR §192.32 (b)(1)(ii) Subpart D [Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter IV (6)(d)]	The following standards apply to the: • control of residual radioactive materials from inactive uranium processing sites. • management of uranium byproduct materials after closure of a disposal area. • long-term management of uranium, thorium, and their decay products. Controls shall be designed to provide reasonable assurance that releases of radon-222 from the above materials to the atmosphere will not: • exceed an average release rate of 20 pCi/m²/s (averaged over the entire surface of the disposal site and over at least one year period). • increase the annual average concentration of radon-222 in air or above any location outside the disposal site by more than 0.5 pCi/L.	Relevant and Appropriate	Radioactive materials in this operable unit are as a residual of releases from uranium processing. Contaminated soil and sediment are similar in characteristic to materials addressed by this regulation or section of the DOE order. Requirements for design of controls for on-property disposal should be consistent with design for control of other residual radioactive materials such as mill tailings. The DOE Order serves as a TBC because it is equivalent to the standards presented for 40 CFR 192.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Air Emission Standards			
Particulates in Air EPA Regulations on National Primary and Secondary Ambient Air Quality Standards 40 CFR 50.6 Ohio Ambient Air Quality OAC 3745-17-07	The level of the national primary and secondary 24-hour ambient air quality standards for particulate matter is 150 micrograms per cubic meter, 24-hour average concentration. Visible particulate emissions from any stack may exceed 20% opacity, as a six-minute average, for not more than six consecutive minutes in any sixty minutes, but shall not exceed 60% opacity, as a six minute average at any time.	Applicable	The Federal standard at 40 CFR 50.6 for particulate matter in air is applicable to remedial actions at OU5 because remedial activities may contribute, at least temporarily, to particulate matter in the air. Particulate emissions may be generated through fugitive emissions and point source discharges from wastewater sludge dewatering or soil treatment/stabilization. The Ohio standard for particulates in air is not an ARAR because it is not more stringent than the Federal standard at 40 CFR 50.6.
Particulates in Air Ohio Ambient Air Quality Standards OAC 3745-17-07	Discharges for a maximum of 6 hours may not exceed 60 % opacity.	Applicable	The State standard for particulate emissions is an ARAR because it places a time limit on particulate emissions that may work in tandem with the Federal annual average. There is the potential that a chosen alternative at the site would contribute particulates to the air. Point source particulate emissions may be generated from wastewater sludge dewatering and soil treatment/stabilization.
Lead in Air EPA Regulations on National Primary and Secondary Ambient Air Quality Standards 40 CFR 50.12 Ohio Ambient Air Quality OAC 3745-17-08	Lead and its compounds measured as elemental lead should not exceed 1.5 micrograms per cubic meter, maximum arithmetic mean averaged over a calendar quarter.	Applicable	The Federal regulation at 40 CFR 50.12 is applicable because it sets a standard for lead in air and lead has been identified as a contaminant of concern at OU5. The State regulation at OAC 3745-17-08 is not an ARAR because it duplicates the standard for lead set by the Federal standard. In order to be an ARAR, the State standard must be more stringent.
Organic Air Emissions OAC-21-07(G)(2)	Emissions of organic materials must be controlled from stationary sources of photochemical reactive material from processes, including drying, not to exceed 40 lbs/day, with a peak of 8 lbs/hr.	Applicable	Remedial actions will contemplate the treatment of soil containing volatile organic compounds.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Air Emission Standards (Continued)			
Particulates in Air EPA Regulations on National Primary and Secondary Ambient Air Quality Standards 40 CFR 50.6	The standards for national primary and secondary standards must be $\leq$ 50 micrograms per cubic meter, annual average - particulate matter shall be measured in the ambient air as PM_{10} (particles with an aerodynamic diameter less than or equal to an nominal 10 micrometers).	Applicable	The Federal standard for particulate emissions to air is applicable as all remedial alternatives which include the use of processes (e.g. sludge dewatering) with the potential to release particulates.

SOILS

Cleanup of Soils Contaminated with Residual Radioactive Materials			
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings 40 CFR 192.02 Subpart A 40 CFR 192.12(a) Subpart B 40 CFR 192.20 Subpart C	Remedial actions shall be conducted so as to provide reasonable assurance that, as a result of residual radioactive materials, the concentration of radium-226 in land averaged over any area of 100 m^2 shall not exceed the background level by more than: · 5 pCi/g averaged over the first 15 cm of soil below the surface, and · 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface. Compliance with this requirement should be shown through measurements performed within the accuracy of currently available types of field and laboratory instruments in conjunction with reasonable survey and sampling procedures.	Relevant and Appropriate	The contaminated materials associated with OU5 are similar in characteristics to uranium mill tailings.
Supplemental Standards			
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings 40 CFR 192.21 (f) and 192.22 (b) Subpart C	Where radionuclides other than radium-226 and its decay product are present in sufficient quantity and concentration to constitute a significant radiation hazard from residual radioactive materials, remedial actions shall, in addition to satisfying the standards of 40 CFR 192.02, Subpart A and 192.12, Subpart B (both listed above), reduce other residual radioactivity to levels that are as low as is reasonably achievable.	Relevant and Appropriate	Contaminated material associated with OU5 are similar in characteristics to uranium mill tailings.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Management of Uranium Byproduct Material			
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings 40 CFR 192.32 (b)(2) Subpart D	The requirements for the management of uranium byproduct materials after closure of a disposal area (40 CFR 192.32 (b)(1)) shall not apply to any portion of a disposal site which contains a concentration of radium-226 in land, averaged over areas of 100m², which, as a result of uranium byproduct material, does not exceed the background level by more than: · 5 pCi/g averaged over the first 15 cm of soil below the surface, and · 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface.	Relevant and Appropriate	Contaminated materials associated with OU5 are similar in characteristics to uranium mill tailings.
Management of Thorium Byproduct Material			
Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings 40 CFR 192.40-192.42 Subpart E	The following are requirements for the management of thorium byproduct materials: · the provisions for the management of uranium byproduct material (40 CFR §192.32) shall apply to thorium byproduct material and: - provisions applicable to the element uranium shall also apply to the element thorium - provisions applicable to radon-222 shall also apply to radon-220 - provisions applicable to radium-226 shall also apply to radium-228 With the concurrence of EPA, alternative provisions may be substituted for any of the above requirements provided the alternative provisions will provide at least an equivalent level of protection for human health and environment.	Relevant and Appropriate	Contaminated material associated with OU5 are similar in characteristics to uranium mill tailings.
Lead Soil Cleanup Standards			
Resource Conservation and Recovery Act 40 CFR 268.41	The maximum concentration of lead in the extract of any sample of treated soil is 5 mg/L.	Relevant and Appropriate	Lead is a Constituent of Concern in soil and sediment in OU5.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
PCB Soil Cleanup Standards			
PCB Spill Cleanup Policy 40 CFR 761.125 40 CFR 761.125 (c)	PCBs at concentration of greater than 50 ppm are subject to TSCA decontamination requirements in 40 CFR 761.120 (b). Soil in non-restricted access areas contaminated by a PCB spill will be decontaminated to 10 ppm PCBs by weight, provided that the soil is excavated to a minimum depth of 10 inches. The excavated soil will be replaced with clean soil, i.e., containing less than 1 ppm PCBs, and the spill site will be restored (e.g., replacement of turf) [761.125 (c)(4)(v)]. For soils in restricted access areas, decontaminate to 25 ppm PCBs by weight [761.125(c)(3)(v)].	TBC	PCBs are a Constituent of Concern in soil for OU5. Concentrations of PCBs at OU5 are expected to be less than 50 ppm. Although published in the Code of Federal Regulations, this is a policy, not a promulgated rule, and hence a TBC.
INTERIM STORAGE OF RESIDUAL RADIOACTIVE MATERIAL			
National Emission Standards for Hazardous Air Pollutants, Radon-222 Emissions 40 CFR 61, Subpart Q	No source at a DOE facility shall emit more than 20 pCi/m²/s of radon-222 as an average from the entire source during periods of storage and disposal.	Applicable	Radon 222 is identified as a constituent of concern for OU5.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
DOE ORDERS			
Radiation Protection of the Public and the Environment Radiation Dose Limit DOE Order 5400.5 Chapter II (1)	The public dose limits include consideration of all exposure modes from all DOE activities (including remedial activities). Effective dose equivalent is the sum of the effective dose equivalent (weighted summation of doses to various organs of the body) from exposures to radiation sources external to the body during the year plus the committed effective dose equivalent from radionuclides taken into the body during the year. Medical sources, consumer products, residual fallout from past nuclear accidents and weapons tests and naturally occurring radiation sources are not included in this summation.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
DOE Order 5400.5, Chapter II (1)(a)	The exposure of members of the public to radiation sources as a consequence of all routine DOE activities shall not cause, in a year, an effective dose equivalent of more than 100 mrem for all exposure pathways.		
DOE Order 5400.5, Chapter II (1)(a)(3)	If unusual circumstances affect a DOE activity in such a manner that the potential public dose could exceed an effective dose equivalent of 0.1 rem (100 mrem) in a year, DOE may authorize a temporary increase of the dose limit up to 0.5 rem (500 mrem).		
As Low As Reasonably Achievable (ALARA) DOE Order 5400.5 Chapter II, 2.	Field Elements shall develop a program and shall require contractors to implement an ALARA Process for DOE activities and facilities that cause public doses.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Management and Control of Radioactive Materials in Liquid Discharges DOE Order 5400.5 Chapter II, 3. Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter II (3)(a)	In addition to the requirements to limit dose to members of the public (onsite and offsite) in accordance with the standards established in paragraphs II.1a and II.1d, further controls are imposed on liquid releases to protect resources such as ... surface water... from undue contamination. Derived Concentration Guides (DCGs) are not release limits, but rather are screening values for considering Best Available Technology (BAT) for these discharges and for making dose estimates. The following requirements apply at the point of discharge from the conduit to the environment [see DCGs in DOE Order 5400.5 Chapter III.3 (listed below)]. The BAT is the prescribed level of treatment for liquid radioactive discharges to surface waters that would otherwise contain radioactive concentrations greater than the DCG values. Implementation of the BAT process is not required for waste streams that contain radionuclide concentrations of not more than the DCG values at the point of discharge to a surface waterway.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE Order is a TBC because all alternatives have the potential to result in the exposure to members of the public.
Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter II (3)(a)(4)	Liquid process waste streams containing radioactive material in the solid present in the waste stream must not exceed 5 pCi/g above background level of settleable solids for alpha-emitting radionuclides or 50 pCi/g above background of settleable solids for beta-gamma-emitting radionuclides.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
DOE Order 5400.5 Chapter II (3)(a)(5)	The absorbed dose to native aquatic animal organisms shall not exceed 1 rad per day from exposure to the radioactive material in liquid wastes discharged to natural waterways.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
DOE Order 5400.5 Chapter III	The Derived Concentration Guides (DCGs) are provided as reference values for conducting radiological environmental protection programs at operational DOE facilities and sites. · ingestion of water · inhalation of air · immersion in a gaseous cloud The DCG values for internal exposure are based on a committed effective dose equivalent of 100 mrem for the radionuclide taken into the body by ingestion or inhalation during one year. The DCG values account for only three exposure pathways (ingested water or inhaled air or air immersion) and do not include other potentially significant pathways. When more complex environmental pathways are involved, a more complete pathway analysis is required for calculating public radiation doses resulting from the operation of DOE facilities. Residual concentrations of radionuclides in water that may be ingested are listed in tabular form in DOE Order 5400.5 Chapter III . The derived concentration guides (DCGs) for the COCs are based on a committed effective dose equivalent (CEDE) of 100 mrem/yr, assuming ingestion of 2 liters/day. Note that these DCGs apply only if ingestion is the single pathway of exposure.	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Radiation Protection of the Public and the Environment DOE Order 5400.5 Chap. III	Residual concentrations of radionuclides in air in an uncontrolled area are limited to the following (for known mixtures of radionuclides, the sum of the ratios of the observed concentration of each radionuclide to its corresponding limit must not exceed 1.0). Derived Concentration Guide[a] (μCi/mL) ISOTOPE / D / W / Y Actinium-227: 2×10^{15} / 7×10^{15} / 1×10^{14} Lead: 9×10^{13} / — / — Polonium-210: 1×10^{12} / 1×10^{12} / — Protactinium-231: — / 9×10^{15} / 1×10^{14} Radium-224: — / 4×10^{12} / — Radium-226: — / 1×10^{12} / — Radium-228: — / 3×10^{12} / — Technetium-99: 1×10^{8} / 2×10^{9} / — Strontium-90[c]: 5×10^{11} / — Thorium-228: — / 5×10^{14} / 4×10^{14} Thorium-230: — / 4×10^{14} / 5×10^{14} Thorium-232: — / 7×10^{15} / 1×10^{14} Uranium-234: 4×10^{12} / 2×10^{12}	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
Derived Concentration Guides for Radionuclides DOE Order 5400.5 Chapter III,3.	The DCGs are given for different lung retention classes (noted as D,W, or Y, where D equals a removal half-time of 0.5 days, W equals a removal half-time of 50 days, and Y equals a removal half-time of 500 days). Derived Concentration Guide[a] Isotope / D / W / Y Uranium-235: 5×10^{12} / 2×10^{12} / 1×10^{13} Uranium-236: 5×10^{12} / 2×10^{12} / 1×10^{13} Uranium-238: 5×10^{12} / 2×10^{12} / 1×10^{13} [a] D, W, and Y (days, weeks, years) represent lung retention classes; removal halftimes assigned to the compounds with classes D, W, and Y are 0.5, 50, and 500 days, respectively. Exposure conditions assume an inhalation rate of 8,400 m^3 of air per year (based on an exposure over 24 hours per day, 365 days per year).	TBC	DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Hot Spots		
Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter IV (4)(a)	Guidelines for residual concentrations of radionuclides other than thorium and radium shall be derived from the basic dose limits by means of an environmental pathway analysis using specific property data where available. Procedures for these derivations are given in DOE/CH-8901. Residual concentrations of radioactive material in soil are defined as those in excess of background concentrations averaged over an area of 100 m^2.	TBC	DOE orders are TBC rather than ARARs because they are not promulgated.
Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter IV (4)(a)(1)	If the average concentration in any surface or below surface area less than or equal to 25 m^3, exceeds the limit or guideline by a factor of$(100/A)^{0.5}$ [where A is the area (in square meters) of the region in which the concentrations are elevated], limits for "hot spots" shall also be developed and applied. Procedures for calculating these hot spots limits, which depend on the extent of the elevated local concentrations, are given in DOE/CH-8901. In addition, reasonable efforts shall be made to remove any source of radionuclide that exceeds 30 times the appropriate limit in the soil, irrespective of the average concentration in the soil.	TBC	DOE orders are TBC rather than ARARs because they are not promulgated.
Radiation Protection of the Public and the Environment DOE Order 5400.5 Chapter IV (4)(a)(2)(3)	The generic guidelines for residual concentrations of radium-226, radium-228, thorium-230, and thorium-232 are: • 5 pCi/g, averaged over the first 15 cm of soil below the surface; and • 15 pCi/g, averaged over 15-cm-thick layers of soil more than 15 cm below the surface. These guidelines take into account ingrowth of radium-226 from thorium-230 and of radium-228 from thorium-232, and assume secular equilibrium. If both thorium-230 and radium-226, or both thorium-232 and radium-228, are present and not in secular equilibrium, the appropriate guideline is applied as a limit for the radionuclide with the higher concentration. If other mixtures of radionuclides occur, the concentrations of individual radionuclides shall be reduced so that either the dose for the mixture will not exceed the basic dose limit or the sum of the ratios of the soil concentration of each radionuclide to the allowable limit for that radionuclide will not exceed 1. Explicit formulas for calculating residual concentrations guidelines for mixtures are given in DOE/CH-8901.	TBC	Radionuclides are Constituents of Concern for soil with the scope of OU5. DOE orders are TBC rather than ARARs because they are not promulgated.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Hot Spots (Continued)		
Residual Radioactive Material DOE Order 5400.5, Chapter IV (4)(b)	Generic guidelines for concentrations of airborne radon decay products shall apply to existing occupied or habitable structures on private property that are intended for release without restriction; structures that will be demolished or buried are excluded. The applicable generic guideline (40 CFR Part 192) is: In any occupied or habitable building, the objective of remedial action shall be, and a reasonable effort shall be made to achieve, on annual average (or equivalent) radon decay product concentration (including background) not to exceed 0.02 WL. [A working level (WL) is any combination of short-lived radon decay products in 1 L of air that will result in the ultimate emission of 1.3 $x10^5$ MeV of potential alpha energy.] In any case, the radon decay product concentration (including background) shall not exceed 0.03 WL. Remedial actions by DOE are not required in order to comply with this guideline when there is reasonable assurance that residual radioactive material is not the source of the radon concentration.	TBC	Radon and other radionuclides in the Uranium-238 decay series are Constituents of Concern in soil within the scope of OU5. DOE orders are TBC rather than ARARs because they are not promulgated.
DOE Order 5400.5 Chapter IV (4)(c)	External gamma radiation levels on open lands shall comply with the basic limit [dose] and the ALARA process, considering appropriate-use scenarios for the area.	TBC	Radionuclides are constituents of concern at OU5. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
Guidelines for Residual Radioactive Material -- Surface Contamination DOE Order 5400.5, Chapter IV (4)(d)	The generic surface contamination guidelines provided in Figure IV-1 are applicable to existing structures and equipment. These guidelines are generally consistent with standards of the NRC (NRC 1982) and functionally equivalent to Section 4, "Decontamination for Release for Unrestricted Use," of Regulatory Guide 1.86, but apply to nonreactor facilities. These limits apply to both interior equipment and building components that are potentially salvageable or recoverable scrap. If a building is demolished, the guidelines in paragraph IV.6a are applicable to the resulting contamination in the ground.	TBC	These criteria will be used for any process facility building built and/or used for the remedial action, including the AWWT, soil washing, soil staging, etc., structures and buildings. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
Guidelines for Residual Material -- Residual Radionuclides in Air and Water DOE Order 5400.5, Chapter IV (4)(e)	Residual concentrations of radionuclides in air and water shall be controlled to the required levels shown in paragraph II (1)(a) and as required by other applicable Federal and/or State laws.	TBC	Remedial actions will control residual contamination in air and water. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Hot Spots (Continued)			
Authorized Limits for Residual Radioactive Material DOE Order 5400.5 Chapter IV (5)(a)	Establishment of Authorized Limits. The authorized limits for each property shall be set equal to the generic or derived guidelines unless it can be established, on the basis of specific property data (including health, safety, practical programmatic and socioeconomic considerations), that the guidelines are not appropriate for use at the specific property. The authorized limits shall be established to (1) provide that, at a minimum, the basic dose limits in paragraph 5400.5 IV (3), will not be exceeded under the "worst-case" or "plausible-use" scenarios, consistent with the procedures and guidance provided in DOE/CH-8901, or (2) be consistent with applicable generic guidelines. The authorized limits shall be consistent with limits and guidelines established by other applicable Federal and State laws.	TBC	Residual radioactivity levels will be established for each remedial action involving excavation. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.
Control of Residual Radioactive Material DOE Order 5400.5 Chapter IV.6.b	Interim Storage must provide: (1) Control and stabilization features to be designed to provide, to the extent reasonably achievable, an effective life of 50 years with a minimum life of at least 25 years. (2) Controls to be designed such that Rn-222 concentrations in the atmosphere above facility surfaces or openings in addition to background levels, will not exceed: (a) 100 pCi/L at any given point; (b) An annual average concentration of 30 pCi/L over the facility site; and (c) An annual average concentration of 3 pCi/L at or above any location outside the facility site. (d) Flux rates from the storage of radon producing wastes shall not exceed 20 pCi/sq.m-sec, as required by 40 CFR Part 61. (3) Controls to be designed such that concentrations of radionuclides in the groundwater and quantities of residual radioactive material will not exceed applicable Federal or State standards. (4) Access to a property and use of onsite material contaminated by residual radioactive material should be controlled through appropriate administrative and physical controls such as those described in 40 CFR Part 192. These control features should be designed to provide, to the extent reasonable, an effective life of at least 25 years.	TBC	All OU5 remedial actions will provide for the interim storage of contaminated materials. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

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TABLE ARAR-2 (Continued)
OU5 POTENTIAL CHEMICAL-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Hot Spots (Continued)		
Control of Residual Radioactive Material DOE Order 5400.5 Chapter IV.6.d	Long-term management for uranium, thorium, and their decay products must provide: (a) Control and stabilization features shall be designed to provide, to the extent reasonably achievable, an effective life of 1,000 years with a minimum life of at least 200 years. (b) Control and stabilization features shall be designed to limit Rn-222 emanation to the atmosphere from the wastes to less than an annual average release rate of 20 pCi/m²/s and prevent increases in the annual average Rn-222 concentration at or above any location outside the boundary of the contaminated area by more than 0.5 pCi/L. Field verification of emanation rates shall be in accordance with the requirements of 40 CFR Part 61. (c) A long-term management facility for any potentially biodegradable contaminated wastes shall be properly conditioned so that the generation and escape of biogenic gases will not cause the requirement in paragraph IV.6d(1)(b) to be exceeded and that biodegradation within the facility will not result in premature structural failure in violation of the requirements in paragraph IV.6d(a). (d) Ground water will be protected in accordance with legally applicable Federal and State standards. (e) Access to a property and use of onsite material contaminated by residual radioactive material should be controlled through appropriate administrative and physical controls such as those described in 40 CFR Part 192 for uranium mill tailings. These controls should be designed to be effective to the extent reasonable for at least 200 years. (2) In addition, long-term management of other radionuclides shall be in accordance with Chapters II, III, and IV of DOE 5820.2A, as applicable.	TBC	All OU5 remedial alternatives except the no action alternative will provide for the long term storage of contaminated materials. Remedial alternatives under land use 2,3, and 4 involve the longterm management of radioactive materials. DOE orders are not ARARs because they are not promulgated. This DOE order is a TBC because all alternatives have the potential to result in exposure to members of the public.

TABLE ARAR-3
OU5 POTENTIAL LOCATON-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Threatened & Endangered Species		
Procedures for Implementing the National Environmental Policy Act 40 CFR §6.302(h) Endangered Species Act U.S.C. §1531, et. seq. Endangered and Threatened Wildlife and Plants 50 CFR §17.21, §17.31, §17.61, §17.71, and §17.94 Interagency Cooperation-Endangered Species Act 50 CFR §402.01	All Federal agencies must ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of the constituent elements essential to the conservation of a listed species within a defined critical habitat. Additional requirements apply if it is determined that a proposed activity could adversely affect these species or their habitat.	Applicable	A 1986-87 baseline ecological survey, conducted by Miami University, found no federally listed endangered species at the Fernald site. However, the study did locate individuals of two state-listed endangered plants (slender fingergrass [*Digitaria filiformis*] and mountain bindweed [*Polygonum cilinode*]) and one state-listed threatened invertebrate (Sloan's crayfish [*Orconectes sloanii*]). Sub-sequent studies identified potentially suitable habitat for two federally-listed endangered species (Indiana bat [*Myotis sodalis*] and running buffalo clover [*Trifolium stoloniferum*]), one Federally proposed species (Cobblestone tigerbeetle [*Cicendula margipennis*], one state-listed endangered species (cave salamander [*Eurycea lucifuga*]) and one state-listed threatened species (spring coralroot [*Corallorhiza wisteriana*]).
Interagency Cooperation-Endangered Species Act 50 CFR §402.12 (a),(b)	A biological assessment shall evaluate the potential effects of the action on listed and proposed critical habitat and determine whether any such species or habitat are likely to be adversely affected by the action and is used in determining whether formal consultation or a conference is necessary.	Applicable	These procedures are required for Federal actions that are "major construction activities".
Ohio Endangered Species Regulations ORC 1531.25	No person shall take or possess any native species of wild animal, or any eggs, or offspring thereof, that is endangered with state-wide extinction.	Applicable	A 1986-87 baseline ecological survey, conducted by Miami University, found one state-listed threatened invertebrate (Sloan's crayfish [*Orconectes sloanii*]). The Miami University study and sub-sequent studies also identified suitable habitat for one state-listed endangered species (cave salamander [*Eurycea lucifuga*]).

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Threatened & Endangered Species (Continued)			
Ohio Endangered Species Regulations ORC 1518.02 OAC 1501:18-1	No person shall root-up, injure, destroy, remove, or carry away on or from public highways, public property, or waters of the state, or on or from the property of another, without the written permission of the owner, lessee, or other person entitled to possession, any endangered plant listed in OAC 1501:18-1.	Applicable	A baseline ecological survey, conducted by Miami University, found two state-listed endangered plants (slender fingergrass [*Digitaria filiformis*] and mountain bindweed [*Polygonum cilinode*]). The Miami University study and subsequent studies also identified suitable habitat for one state-listed threatened species (spring coralroot [*Corallorhiza wisteriana*]).
Classification of Solid Waste Disposal Facilities and Practices 40 CFR §257.3-2	Solid waste disposal facilities or practices shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife. Solid waste disposal facilities or practices shall not result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17.	Applicable	See first remark in requirements column.
HISTORIC AND CULTURAL RESOURCE PROTECTION			
Antiquity and Historic Site Preservation			
Antiquities Act of 1906 16 U.S.C. §431-433 and Historic Sites Preservation Act 16 U.S.C. §461-467	No person may appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity situated or controlled by the Government of the United States. Requires identification and preservation of cultural resources on federal lands. Includes natural land marks.	Applicable	Proposed areas of disturbance associated with Operable Unit 5 remedial actions will be surveyed and the State Historic Preservation Office (SHPO) consulted as necessary.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Historic and Cultural Resource Protection			
Archaeological Resource Recovery and Preservation			
Archeological Recovery Act 16 U.S.C. §408(a) Procedures for Implementing the National Environmental Policy Act 40 CFR §6.301 (c) Protection of Archaeological Resources 43 CFR §7.4(a)	Whenever any Federal agency finds, or is notified, in writing, by an appropriate historical or archaeological authority, that its activities in connection with any Federal construction project or federally licensed project, activity, or program may cause irreparable loss or destruction of significant scientific prehistorical, historical, or archaeological data, such agency shall notify the Secretary of the Interior, in writing, and shall provide the Secretary with appropriate information concerning the project, program, or activity. No person may excavate, remove, damage, or otherwise alter or deface or attempt to excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands unless such activity is pursuant to a permit. If an EPA activity may cause irreparable loss or destruction of significant scientific, prehistoric, historic, or archaeological data, the responsible official or the Secretary of the Interior is authorized to undertake data recovery and preservation activities.	Applicable	Proposed areas of disturbance associated with Operable Unit 5 remedial actions will be surveyed and the Department of Interior will be notified as required.
Historic Preservation			
National Historic Preservation Act §106 & §110 Protection of Historic and Cultural Properties 36 CFR §60, §60.4, §63, and §800	DOE must determine whether or not historic properties are located in an area of potential impact, and if such properties meet National Register criteria, DOE must determine whether or not the proposed activity will affect the historic properties in any way. DOE must consult with the SHPO on the properties and, based upon criteria established in the Advisory Council's regulations, must determine impacts. Adverse effects must be avoided or mitigated.	Applicable	Proposed areas of disturbance associated with Operable Unit 5 remedial activities will be surveyed to determine applicable requirements and the SHPO will be consulted as required.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Historic and Cultural Resource Protection (Continued)			
Historic Preservation			
National Historic Preservation Act 16 U.S.C. §469, Archaeological and Historic Preservation Act	Requires preservation of artifacts and data associated with archaeological finds.	Applicable	See comment above.
American Indian Religious Freedom Act, 42 U.S.C. §1996	Provides for tribal access by native peoples to grave sites and sites of cultural, symbolic, or religious significance.	Applicable	See comment above.
Executive Order 11593, Protection and Enhancement of Cultural Environment	Requires an inventory of site for potential historic places for eligibility in the National Register of Historic Places.	Applicable	See comment above.
Native American Graves Protection and Repatriation Act 25 U.S.C. §3001	Requires identification and preservation of cultural resources on federal lands. Includes natural landmarks.	Applicable	See comment above.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Historic and Cultural Resource Protection (Continued)			
Historic Preservation (Continued)			
National Historic Preservation Act 16 U.S.C. §470f 16 U.S.C. §470h-2 (a)(1)	A Federal agency must take into account the effect of any undertaking on any district, site, building, structure, or object that is included in, or eligible for, inclusion in the National Register of Historic Places.	Applicable	Requires protection of sites listed or eligible to be listed on the National Register of Historic Places.
National Historic Landmarks Program 36 CFR §65.2(c)(2)	The heads of all Federal agencies shall assume responsibility for the preservation of historic properties which are owned or controlled by such agency.		
Procedures for Implementing the National Environmental Policy Act 40 CFR §6.301 (a),(b)	Prior to any Federal undertaking which may directly and adversely affect any National Historic Landmark, the head of the responsible agency shall, to the extent possible, minimize the harm to such landmark.		
Floodplain/Wetlands			
Floodplain/Wetlands			
DOE Compliance with Floodplain/Wetlands Environmental Review Requirements 10 CFR §1022.11 (a), (b), (c)	DOE shall determine applicability of the floodplain management and wetlands protection requirements of this part. In making a floodplain determination, DOE shall utilize the Flood Insurance Rate Maps (FIRMs) or the Flood Hazard Boundary Maps (FHBMs) prepared by the Federal Insurance Administration of the Department of Housing and Urban Development to determine if a proposed action is located in the base or critical action floodplain, as appropriate. For a proposed action in an area of predominately Federal or State land holdings where FIRM or FHBM maps are not available, information shall be sought from the land administering agency (e.g., Bureau of Land Management, Soil Conservation Service, etc.) or from agencies with floodplain analysis expertise.	Applicable	Review will be conducted concurrently with NEPA determinations for proposed actions.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Floodplain/Wetlands (Continued)		
Floodplain/Wetlands (Continued)			
DOE Compliance with Floodplain/Wetlands Environmental Review Requirements 10 CFR §1022.12(a)	If DOE determines, pursuant to 10 CFR §1022.5 and 1022.11, that this part is applicable to the proposed action, DOE shall prepare a floodplain/wetlands assessment, according to the requirements of this section (10 CFR §1022.12).	Applicable	Floodplain/wetland assessments will be prepared as required.
DOE Compliance with Floodplain/Wetlands Environmental Review Requirements 10 CFR §1022.15(a)	If DOE finds that no practicable alternative to locating in the floodplain/wetland is available, consistent with the policy set forth in Executive Order 11988, DOE shall, prior to taking action, design, or modify its action in order to minimize potential harm to or within the floodplain/wetland.	Applicable	Floodplain/wetland impacts will be avoided and minimized to the maximum extent practicable.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Floodplain/Wetlands (Continued)			
Floodplain/Wetlands (Continued)			
DOE Compliance with Floodplain/Wetlands Environmental Review Requirements 10 CFR §1022.3(a),(b)(1),(2),(3),(5),(6),(c),(d),(e)	DOE shall exercise leadership and take action to: • avoid to the extent possible the long- and short-term adverse impacts associated with the destruction of wetlands and the occupancy and modification of floodplain and wetlands, and avoid direct and indirect support of floodplain and wetlands development wherever there is a practicable alternative. • incorporate floodplain management goals and wetlands protection considerations into its planning, regulatory, and decision making processes and shall to the extent practicable: - reduce the hazard and risk of flood loss. - minimize the impact of floods on human safety, health, and welfare. - restore and preserve natural and beneficial values served by the floodplain. - minimize the destruction, loss, or degradation of wetlands. - preserve and enhance the natural and beneficial values of wetlands. • undertake a careful evaluation of the potential effects of any DOE action taken in a floodplain and any new construction undertaken by DOE in wetlands not located in a floodplain. • identify, evaluate, and as appropriate, implement alternative actions which may avoid or mitigate adverse floodplain/wetlands impacts. • provide opportunity for early public review of any plans or proposals for actions in floodplain and new construction in wetlands.	Applicable	Short and long term impacts associated with Operable Unit 5 remedial activities will be avoided and minimized to the maximum extent practicable.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Floodplain/Wetlands (Continued)			
Floodplain/Wetlands (Continued)			
DOE Compliance with Floodplain/Wetlands Environmental Review Requirements 10 CFR §1022.5(b),(h)	This part shall apply to all proposed floodplain/wetlands actions, including those sponsored jointly with other agencies, where practicable alternatives to the proposed actions are still available. The policies and procedures of this part which are applicable to floodplain actions shall apply to all proposed actions which occur in a wetlands located in a floodplain.	Applicable	See comment above.
Wetlands			
Procedure for Implementing the National Environmental Policy Act 40 CFR §6.302(a) [Executive Order 11990]	Federal agencies conducting certain activities must avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands when a practicable alternative exists.	Applicable	Approximately 35.9 acres of jurisdictional wetlands and 8.9 acres of waters of the United States were identified on-site as a result of the 1993 FEMP Wetland Delineation. The U.S. Army Corps of Engineers officially approved the delineation on August 19, 1993. Wetland impacts associated with Operable Unit 5 remedial activities will be minimized and avoided to the maximum extent practicable.
Executive Order 11990, Protection of Wetlands	This order requires that Federal agencies take action to avoid adversely impacting wetlands wherever possible, to minimize wetland destruction and to preserve the values of wetlands and to prescribe procedures to implement the policies and procedures of the Executive Order.	Applicable	Wetland impacts associated with Operable Unit 5 remedial activities will be avoided and minimized to the maximum extent practicable.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Floodplain/Wetlands (Continued)		
Wetlands (Continued)			
Nationwide Permit Program, 33 CFR §330	The U.S. Army Corps of Engineers has authorized certain categories of activities involving the discharge of dredged and fill material into wetlands and waters of the U.S. under the Nationwide Permit (NWP) Program. Impacts involving the discharge of dredged and fill material will be conducted in accordance with the substantive requirements of applicable NWPs as required. Discharges not authorized by NWP will be conduct in accordance with the substantive requirements of 33 CFR 323 and 40 CFR 230.	Applicable	Approximately 35.9 acres of jurisdictional wetlands and 8.9 acres of waters of the United States have been identified on-site. Impacts to these areas will be avoided and minimized to the maximum extent practicable. Discharges of dredged and fill material authorized by NWPs will be conducted in accordance with the substantive requirements of the respective permits.
Permits for the Discharge of Dredged and Fill Material into waters of the United States, 33 CFR §323	Remedial actions involving the discharge of dredge and fill material into these areas shall meet the substantive requirements of this section and 40 CFR §230.	Applicable	Discharges of dredged and fill material not authorized by NWP will be conducted in accordance with the substantive requirements of these regulations.
Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged and Fill Material, 40 CFR §230	40 CFR 230 sets guidelines for evaluation of discharges of dredged and fill material into wetlands and waters of the U.S. The requirement specify that no discharge of dredged or fill material shall take place unless the permit authorizing agency makes a determination of the short-term effects of the discharge on the environment of the site, and if: 1. there is no practicable alternative to the action; 2. a State Water Quality Standard will be violated; and 3. it contributes to or causes the significant degradation of waters of the United States.	Applicable	Discharges of dredged and fill material associated with Operable Unit 5 remedial actions will be evaluated and conduct against the substantive requirements of these regulations.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Floodplain/Wetlands (Continued)			
Wetlands (Continued)			
Section 401 State Water Quality Certifications, OAC 3745-32-02	Section 401 State Water Quality Certification is required to conduct dredged and fill activities within wetlands or waters of the U.S. State Water Quality Certification is granted provided: 1. the discharge does not prevent or interfere with the attainment or maintenance of applicable water quality standards; and 2. the discharge does not result in a violation of any applicable provisions of CWA.	Applicable	Discharges of dredged and fill material associated with Operable Unit 5 remedial actions will meet the substantive requirements of these regulations.
Executive Order 11990, Protection of Wetlands	This order requires that Federal agencies take action to avoid adversely impacting wetlands wherever possible, to minimize wetlands destruction and to preserve the values of wetlands and to prescribe procedures to implement the policies and procedures of the E.O.	Applicable	Wetland impacts associated with Operable Unit 5 remedial actions will be avoided and minimized to the maximum extent practicable.
Protection of Wetlands 40 CFR §258.12	New municipal solid waste landfill units must not be located in wetlands unless Ohio approves otherwise.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(14)	The limits of waste placement cannot be located within 200 feet of a stream, lake, or natural wetland, unless deemed acceptable by the Director of the OEPA.	Applicable	See comment above.
Floodplain			
Procedures for Implementing the National Environmental Policy Act 40 CFR §6.302(b) [Executive Order 11988]	Federal agencies must evaluate the potential effects of actions they may take in a floodplain to avoid, to the extent possible, adverse effects associated with direct and indirect development of a floodplain.	Applicable	An updated floodplain determination was performed for Paddy's Run in October 1993 using the Army Corps of Engineers' standard HEC2 water surface profile analysis program. The 100-year flood elevations reach the western slope of the Inactive Flyash Pile and the toe of the South Field slope.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Floodplain/Wetlands (Continued)			
Floodplain (Continued)			
Executive Order 11988, Floodplain Management	This order requires Federal agencies undertaking actions within a floodplain to evaluate the potential the action has for adverse impacts on the floodplain. If it is determined that adverse impacts could occur, the effects of the action must be minimized to the maximum extent practical.	Applicable	Floodplain impacts associated with Operable Unit 5 remedial activities will be avoided and minimized to the maximum extent practicable.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (A)(3)	A solid waste disposal facility may not be located in a floodway.	Applicable	Any on-site solid waste disposal facilities associated with Operable Unit 5 remedial actions will be sited in accordance with these regulations.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(10)	The limits of solid waste placement and the leachate management system cannot be located in a regulatory floodplain, unless deemed acceptable by the Director of the OEPA.	Applicable	See comment above.
Ohio Solid Waste Siting Criteria			
Safe Drinking Water Act 42 U.S.C. §1424(e)	All Federal financially assisted projects constructed in the area of a sole source aquifer and its principal recharge zone will be subject to EPA's review to insure that these projects are designed and constructed so that they do not create a significant hazard to public health.	Applicable	A notice in 53 FR 15876 (May 4, 1988) designated the Buried Valley Aquifer System of the Great Miami/ Little Miami River Basins of southwestern Ohio as a sole or principal source of drinking water. The Fernald site is located above this aquifer.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(4)	A sanitary landfill facility may not be located within the surface and subsurface areas surrounding a public water supply well through which contaminants may move toward and may reach the public water supply well within a period of 5 years.	Applicable	Any proposed on-site solid waste disposal facilities associated with Operable Unit 5 remedial actions will be sited in accordance with these regulations.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Ohio Solid Waste Siting Criteria (Continued)		
OEPA Guidance on Solid Waste Siting Criteria: Minimum Distance From a Public Water Supply Well GD202.105	To avoid the application of this siting criteria: • It should be shown, using site-specific and publicly available information, that the nearest public water supply well hydrogeologically downgradient from the solid waste landfill facility is more than 5 years time of travel from the boundaries of the solid waste landfill facility. • The five year time of travel shall be calculated beginning at the facility boundary of the solid waste landfill facility closest to the public water supply well and proceeding in a hydraulically downgradient direction ending at the well screen of all public water supply wells intersected with the five year time of travel. • Many methods can be used to demonstrate compliance with this rule, from simple groundwater velocity equations to complex three-dimensional models. The demonstration should use the method best suited to the site-specific situation. • To be considered for an exemption from this rule, the following will need to be demonstrated: - that there is at least 50 feet of separation between the bottom of the solid waste landfill facility liner and the aquifer system in which the public water supply well is screened. - that any release of leachate shall be detected prior to reaching the aquifer system in which the public water supply well is screened. - that once leachate is released below the liner, the leachate shall not reach the aquifer system in which the public water supply well is screened within a time span of 100 years plus the anticipated life of the solid waste landfill facility which shall include the 30 year post-closure care period.	TBC	Proposed solid waste disposal facilities will be sited in accordance with these standards.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Ohio Solid Waste Siting Criteria (Continued)		
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(5)	A sanitary landfill facility cannot be located above an aquifer declared by the federal government under the Safe Drinking Water Act to be a sole source aquifer.	Applicable	Any proposed on-site solid waste disposal facilities associated with Operable Unit 5 remedial activities will be sited in accordance with these regulations.
OEPA Guidance on Solid Waste Siting Criteria: Sole Source Aquifer GD202.101	The Director may grant an exemption to the prohibition of siting a sanitary landfill facility over a sole source aquifer (OAC 3745-27-07 (B)(5)) under ORC 3734.02 (G). In order to grant an exemption, the Director needs to determine that no adverse impact to human health or safety or the environment will occur due to granting the exemption. The decision to grant an exemption from this rule is made on a site by site basis. Among the items that should be considered when determining if a waiver will be granted are whether a significant thickness of low permeable material exists between the sanitary landfill facility liner and the sole source aquifer and whether there is an inter-connection between the sole source aquifer and any significant saturated zones which exist above the sole source aquifer.	TBC	The site overlies a sole source aquifer.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(9)	A sanitary landfill facility cannot be located above an unconsolidated aquifer capable of sustaining a yield of 100 gallons per minute for a 24-hour period to a water supply well located within 1,000 feet of the limits of solid waste placement, unless deemed acceptable by the Director of the OEPA.	Applicable	Proposed on-site solid waste disposal facilities associated with Operable Unit 5 remedial actions will be sited in accordance with these standards.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Ohio Solid Waste Siting Critiera (Continued)		
OEPA Guidance on Solid Waste Siting Criteria: 100 Gallon Per Minute Aquifer GD202.102	An exemption to the prohibition of siting a sanitary landfill facility over an unconsolidated aquifer capable of sustaining a yield of 100 gallons per minute for a 24-hour period (OAC 3745-27-07 (B)(9)) may be obtained by demonstrating that the thickness and lack of permeability of the sediment that exists between the bottom of the proposed sanitary landfill facility liner and the top of the unconsolidated high yield aquifer provide adequate protection to the unconsolidated high yield aquifer from the effects of a release of leachate from the sanitary landfill facility. The sediment should prevent leachate from migrating from the bottom of the sanitary landfill facility liner to the high yield aquifer in a time period equal to the active life of the facility including the post-closure care period.	TBC	The site overlies a sole source aquifer.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(11)	The limits of solid waste placement cannot be located within 1,000 feet of a water supply well or developed spring unless it is deemed acceptable by the Director of the OEPA or it is: • controlled by the applicant, is needed as a source of nonpotable water, no other reasonable alternate water source is available, and the well is constructed to prevent contamination of the groundwater, OR • located at least 500 feet hydrogeologically upgradient from the limits of solid waste placement, OR • separated from the limits of solid waste placement by a hydrogeologic barrier, OR • constructed and used solely for monitoring groundwater quality	Applicable	Proposed solid waste disposal facilities will be sited in accordance with these standards.
OEPA Guidance on Solid Waste Siting Criteria: Minimum Isolation Distances to Wells and Developed Springs GD0202.103	This guidance clarifies when exceptions to the required 1,000 foot isolation distance from water supply wells and developed springs (OAC 3745-27-07 (B)(11)) apply and when a situation contrary to the rule can be deemed acceptable to the Director.	TBC	See comment above.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Ohio Solid Waste Siting Criteria (Continued)		
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(15)	The isolation distance between the uppermost aquifer system and the bottom of the recompacted soil liner of a sanitary landfill system cannot be less than 15 feet of in situ or added geologic material deemed acceptable by the Director of the OEPA.	Applicable	Proposed solid waste disposal facilities will be sited in accordance with these standards.
OEPA Guidance on Solid Waste Siting Criteria: Material Acceptable to the Director GD202.104	For geologic material to be deemed acceptable to the Director of the OEPA as added fill under OAC Rule 3745-27-07 (B)(15), it must be able to meet the following criteria: • the geologic material must be impermeable enough so it will not store, transmit or yield a significant amount of water to a well or spring • the geologic material must be able to impede both physically and chemically, the flow of leachate constituents through it In order to meet both criteria listed above, the added geologic material should: • be classified as CL, SC, GC, CL-ML, or CH under the Unified Soil Classification System (USCS) • be composed of particles of which at least 25% by dry weight will pass through a No. 200 (75 μm) sieve • be composed of no more than 25% by dry weight particles which will not pass through a No. 4 sieve • no particle should be greater than 8 inches in diameter • have a final permeability of no more than 1×10^{-8} cm/sec • be recompacted in a manner that when the landfill is constructed on it, no damage to the landfill liner will occur due to settling of the added material	TBC	See comment above.

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TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Other Solid Waste Siting Criteria		
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(1)	Sanitary landfill can not be located in sand or gravel pit where the sand and gravel deposit has not been completely removed.	Applicable	Proposed on-site solid waste disposal facilities associated with Operable Unit 5 remedial activities will be sited in accordance with these regulations.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(2)	Sanitary landfill can not be located in limestone quarry or sandstone quarry, unless deemed acceptable by Director of the OEPA.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(3)	Limits of solid waste placement are not to be located in any of the following areas: a. National Park or Recreation Area; b. Candidate area for potential inclusion in National Park System; c. State Park or established state park purchase area; d. Any property that lies within the boundaries of a National Park or Recreation Area but that has not been acquired or is not administered by the Department of Interior.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(6)	Limits of solid waste placement are not located within one thousand feet of the following: a. area designated by ODNR as either state nature preserve, state wildlife area, or state scenic river; b. areas designated, owned, and managed by Ohio historical society as nature preserve; c. area designed by DOI as either national wildlife refuge or a national scenic river; d. area designated by U.S. Forest Service as a special interest area; e. Stream segments designated by OEPA as either state resource water, cold water habitat, or an exceptional warmwater habitat.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(7)	Limit of solid waste placement and leachate management system are not located within 200 feet of fault that has displacement in Holocene time.	Applicable	See comment above.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
Other Solid Waste Disposal Criteria (Continued)			
Ohio Solid Waste Disposal Regulations OAC 3745-27-07(B)(8)	The sanitary landfill facility is not located within an area of potential subsidence due to an underground mine.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(12)	The limits of waste placement cannot be located within 300 feet of the sanitary landfill facility's property line, unless deemed acceptable by the Director of the OEPA.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-07 (B)(13)	The limits of solid waste placement cannot be located within 1,000 feet of a domicile whose owner has not consented in writing to the location of the sanitary landfill facility.	Applicable	See comment above.
Ohio Solid Waste Disposal Regulations OAC 3745-27-09(Y)	Section 3745-27-09 (Y) states the permittee shall submit to the Director of the OEPA, upon every tenth anniversary of the effective date of a permit to install that approved the initial construction of the facility, an analysis demonstrating that the design, construction and final closure plan of the sanitary landfill facility continue to constitute best available technology. If the Director of the OEPA determines that the design is no longer consistent with best available technology as being applied to the sanitary landfill industry in the state of Ohio, the permittee may be required to submit a permit to install application for necessary modifications to the landfill facilities. If a permit to install is required, the Director of the OEPA shall not apply the siting criteria outlined in paragraph (B) of OAC 3745-27-07, when considering the permit to install application.	Applicable	See comment above.

TABLE ARAR-3 (Continued)
OU5 POTENTIAL LOCATION-SPECIFIC REQUIREMENTS

Citation	Requirement	ARAR/TBC	Rationale
	Radiological Siting Criteria		
Joint NRC-EPA Guidance on Siting of Mixed Low-Level Radioactive and Hazardous Waste Units	Areas with highly vulnerable hydrogeology deserve special attention in the siting of a mixed low-level waste disposal facility. Hydrogeology is considered vulnerable when groundwater travel time along any 100-foot flow path from the edge of the engineered containment structure in less than approximately 100 years. Disposal sites located in areas of vulnerable hydrogeology may require extensive, site-specific investigations which could lead to and provide bases for restrictions or modifications to design or operating practices. However, a finding that a site is located in an area of vulnerable hydrogeology alone, based on the EPA criteria, is not considered sufficient to prohibit siting under RCRA.	TBC	This guidance is not an ARAR because it is not promulgated.